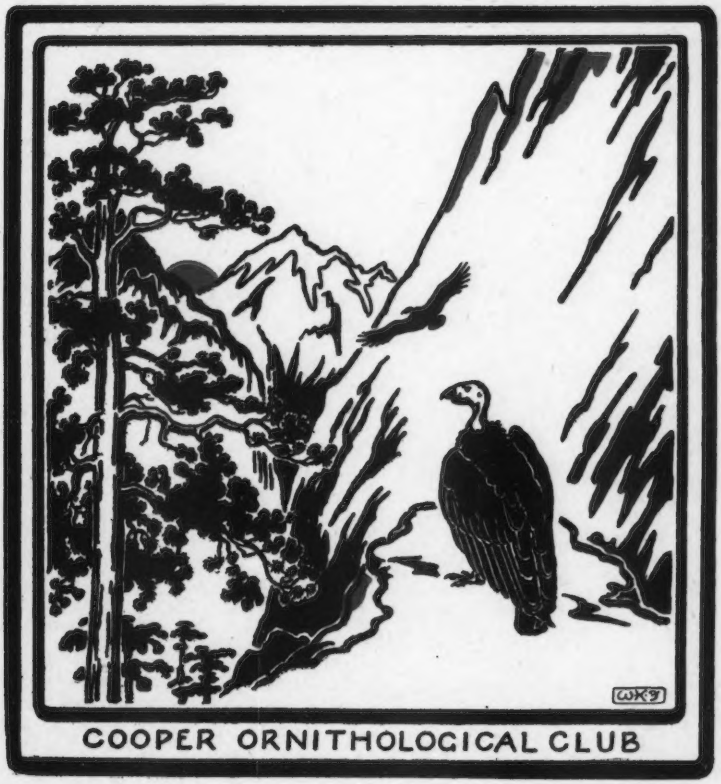
RHJ.

THE CONDOR

A Magazine of Western Ornithology

Volume XXVII July-August, 1925 Number 4



COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

Published Bi-monthly by the Cooper Ornithological Club

Entered as second-class matter May 15, 1925, at the post-office at Berkeley, California, under Act of Congress of February 28, 1925, Section 412, paragraph 4.

Issued from the Office of THE CONDOR, Museum of Vertebrate Zoology, Berkeley, California.

SUBSCRIPTION RATES

Three Dollars per Year in the United States, payable in advance.
Fifty Cents the single copy.
Three Dollars and Twenty-five Cents per Year in all other countries in the International Postal Union.

COOPER ORNITHOLOGICAL CLUB

Dues are payable in advance on January first for the calendar year: Three Dollars per year for members residing in the United States; Three Dollars and Twenty-five Cents in all other countries. Members whose dues are paid receive THE CONDOR without additional charge.

Send manuscripts for publication to the Editor, J. GRINNELL, or to the Associate Editor, H. S. SWARTH, Museum of Vertebrate Zoology, University of California, Berkeley, California.

Send dues, subscriptions, orders for back numbers of THE CONDOR and for the PACIFIC COAST AVIFAUNA series to the Circulation Manager, W. LEE CHAMBERS, Box 123, Eagle Rock, California.

Executive Manager, J. EUGENE LAW, Altadena, California.
Endowment Secretary, D. R. DICKEY, 514 Lester Avenue, Pasadena, California.

Issued July 15, 1925

CONTENTS

The Boom-flight of the Pacific Nighthawk (with diagrams) ..... *Alden H. Miller* 141

The Winking of the Water Ouzel ..... *Charles W. Townsend* 143

Chendytes, a Diving Goose from the California Pleistocene (with drawings) ..... *Loye Miller* 145

Pelicans versus Fishes in Pyramid Lake ..... *E. Raymond Hall* 147

The First Bulletin of the Cooper Ornithological Club ..... *Joseph Grinnell* 161

A Revisionary Study of the Western Gull ..... *Donald R. Dickey* and *A. J. van Rossem* 162

A Report on the Birds of Northwestern Alaska and Regions Adjacent to Bering Strait. Part IV (with four photos) ..... *Alfred M. Bailey* 164

FROM FIELD AND STUDY

- Field Notes on the Raven ..... *Roland Case Ross* 172
- Segregation of the Sexes in the Sage-hen ..... *Alfred M. Bailey* 172
- An Early Account of the Birds of Lake Merritt, Oakland ..... *J. Grinnell* 173
- Remarkable Work of the Pileated Woodpecker (with one photo) ..... *Enid Reeve Michael* 174
- Clark Nutcracker in Alameda County, California ..... *W. Otto Emerson* 175
- Early Nesting of the Fork-tailed Petrel ..... *C. I. Clay* 175
- The House Finch in the Oklahoma Panhandle ..... *Ralph C. Tate* 176
- The Status of the San Clemente House Finch ..... *A. J. van Rossem* 176
- Winter Birds Seen at the Grand Canyon, Arizona ..... *Charles W. Townsend* 177
- An Observation on the Pre-nuptial Feeding Habit of the California Linnet ..... *Laurence M. Huey* 178
- Another Occurrence of the Gray-headed Junco in San Diego County ..... *Paul F. Covel* 179
- Wilson Phalarope on the Coast of Southern California in the Spring ..... *Roland Case Ross* 179

EDITORIAL NOTES AND NEWS 179

- Portrait of Wilfred H. Osgood 180

PUBLICATIONS REVIEWED: Skinner's Birds of Yellowstone Park ..... *J. Grinnell* 180

MINUTES OF COOPER CLUB MEETINGS 181

THE CONDOR

A Bi-monthly Magazine of Western Ornithology

Volume XXVII **July-August, 1925** **Number 4**

[Issued July 15]

THE BOOM-FLIGHT OF THE PACIFIC NIGHTHAWK

WITH DIAGRAMS

By ALDEN H. MILLER

THE VARIOUS notes of the Pacific Nighthawk (*Chordeiles virginianus hesperis*) and its close subspecific relatives have been referred to commonly in various ornithological publications. Yet certain things in connection with the production of these notes seem still to be in doubt. This is true chiefly of the booming or roaring note produced in the breeding season. Mr. J. H. Bowles in an article in the *Auk* (XXXVIII, 1921, p. 203) says that, in his opinion, the noise is most likely produced by the rush of air through the primaries. Undoubtedly this is the common belief held by many of those who have observed the note and accompanying flight. However, direct evidence for the theory seems lacking.

During June and July, 1924, while at Camp Lewis, Washington, I had an opportunity to take a few field notes on the behavior of the local nighthawks. The bird in western Washington I believe is considered *C. v. hesperis,* although intergrading toward *C. v. virginianus.* The region around Camp Lewis is typical of the Puget Sound country, with Douglas firs, oaks, and grass prairie alternating. The following is a resumé of my observations, as made principally on July 8, at about the height of the nighthawk's nesting season.

While returning to camp about 7:30 P. M., by way of the prairie, I happened to notice an unusual number of nighthawks feeding about over the open. A great many of the birds were booming as they flew back and forth in zigzag lines. Apparently the chief interest of the birds was in feeding; the diving and booming occurred at intervals of about 300 yards. There was no attempt to tower for the dive, as is sometimes done; so it would seem that these birds were not near any nest locations and were simply playing. Several were circling over me at about forty feet height, when it occurred to me to wave my hat to attract their attention. One bird immediately dove down about ten feet from me and at ten feet from the ground swerved up. No boom was produced and the wings were held up in the characteristic V-like position used in soaring. The turn upward was evidently accomplished entirely by the tail as no perceptible change in the wings was seen until the beating was started after a twenty-foot rise. The dive was quite as steep as in the booming dives previously witnessed, and I thought at the time that the bird would boom. I waved my hat again and the same individual circled about and again dove in a similar way. The bird descended head toward me with wings up. Suddenly, the wings were bent sharply down to a position similar to the habitual soaring pose of the Spotted Sand-

piper, and at the same instant the boom was produced. The bird then swung upward, but with wings in normal position. Flapping was resumed, as before, after a twenty foot rise.

I continued waving my hat and the bird repeatedly dove. Every boom was in exact coördination with the downward turn of the wings. Viewing the dive from the side, the turning of the wings seemed neither to check the speed nor affect the height of the rise later. Soon another bird took to diving close by, and its actions were seen to be similar. Both birds were now diving without the stimulus of the hat. For at least twenty times the first bird dove, and the other, five or six. Occasionally they dove and turned without booming, and as before, the wings were held up throughout.

On the spot, I attempted estimates of the angles and distances of the plunges. The height seemed to vary from 100 feet to as little as 15 feet; the descent was made at a 70 degree angle with the ground; the turn was quite sharp considering the size of the bird, and the ascent was on an angle of 60 degrees for 15 or 20 feet, whereupon the normal flight zigzag was resumed; the turn was usually 10 feet from the ground and occasionally much more.

The two birds that had been diving for me now left and continued their feeding course over the prairie. Birds were continually passing over, but I obtained no more results with the hat. I did, however, take more careful note of the diving and this led me to observe that one particular bird on attempting a very short dive of 15 feet barely produced an audible sound. In a few seconds the same bird took a dive of perhaps 35 feet and produced a normal boom. This bird was turning at a height of 30 feet from the ground, as was the general case on this evening.

As regards the character of the sound when heard at close range, the main explosive boom seems to be preceded by a brief, lesser, vibrating sound which bursts forth into the full bellow. Both parts seem to have a distinct element of pitch. The latter part is lower with of course greater resonance and depth of quality. In fact, the whole character of the combined note gives the impression of feathers vibrating as though starting rapidly in short motion and quickly changing to a long heavy vibration. The bird that made the short dive of 15 feet seemed never to gain the full vibration normally attained. Suffice it to say, that the complete note certainly sounds as though it would rack and tear the bird to pieces.

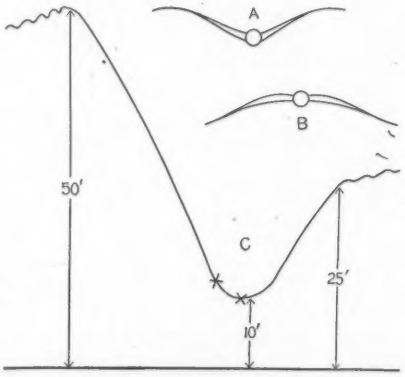


Fig. 39. a, THE WING POSITION IN SOARING; b, THE WING POSITION OF THE BOOM; c, LATERAL VIEW OF THE DIVE, WITH THE TWO X'S MARKING THE DURATION OF THE BOOM.

By this time, approximately 8:15 P. M., the light was growing poor and observations for the evening were discontinued. Notes made on other days simply bear out the facts already stated. There is, nevertheless, the diving directly over the nest vicinity which I did not chance to witness at Camp Lewis. But, from brief notes on birds seen diving near nests in the Tahoe region, I would add that they often dive as far as 200 feet and that the turn may possibly be less than 10 feet from the ground.

Also, the staccato, fricative, vocal note is sometimes given with the boom and the same vocal note is usually repeated in quickening cadence while the bird is mounting for a long dive. These longer dives were all observed in full daylight.

It may, then, be concluded that the boom note of the nighthawk is produced by the vibration of the wing feathers, probably the primaries. The vibration is caused by the down turning of the wings at the bottom of the boom dive. The intensity of the sound is more or less proportional to the speed attained. The character of the sound is such as to suggest the vibration of feathers. The dive may be made and checked without the boom or the turning of the wings, and entirely at the bird's pleasure. The dive is usually at an angle of 70 degrees with the ground, ending in a sharp turn and upward glide at a 60 degree angle; but the turning point, height, and vocal notes accompanying vary with the occasion. If the performer is on exhibition, he makes the most of himself, while if playing, the act is more haphazard.

There are, of course, still many facts in connection with the boom flight not yet known, and further experimentation on the curiosity of the nighthawks may lead to interesting results. Seemingly the birds fell for an army hat, and perhaps another style would affect them differently. Lastly, it should be understood that some of my conclusions could not be made entirely on my own observations; therefore, I have considered information before published in order to substantiate my opinion.

Los Angeles, California, February 6, 1925.

THE WINKING OF THE WATER OUZEL

By CHARLES W. TOWNSEND

IT IS COMMONLY stated that the Dipper (*Cinclus mexicanus unicolor*) winks with its nictitating membrane. Thus, Grinnell and Storer, *Animal Life in the Yosemite,* p. 544, say: "The nictitating membrane or 'third eyelid' is whitish in the Dipper, and when drawn backward across the eye, as it is frequently when the bird is above water, can be seen at a considerable distance. This membrane probably is drawn over the eyeball when the bird is working beneath the surface of the water." Dawson, *Birds of California,* II, p. 733, says of this bird: "Ever and again he delivers a slow wink, upside down, with the white nictitating membrane."

I hesitate to disagree with such authorities; but my observations, made under very favorable circumstances and mainly with this point in view, lead me to think that the winking is done with the upper eyelid. My studies of other birds, to be detailed later, confirm me in the belief that it is not the nictitating membrane of the Dipper which makes such conspicuous and easily seen winks.

On November 28, 1924, I studied three Water Ouzels at Pecos River, New Mexico, and on March 7, 1925, one at the Merced River in Yosemite. In both cases I was able to watch them with eight-power binoculars within twenty or twenty-five feet. The part moved is pure white and it contrasts strongly with the dark plumage. As the movement in every case seemed to me to be from above downwards, it was apparent that it was the upper eyelid that winked and not the nictitating membrane; for the movement of the latter is from the inner angle of the eye outwards. In the Yosemite bird, which was winking constantly and at the same time singing *sotto voce,* I noticed several times that a narrow upper white edge of the eye was noticeable momentarily after the winking, as if the upper lid at these times was not at once returned to its place.

The fact that the part moved is white in an otherwise dark bird has doubtless led to the belief that this is the nictitating membrane, which in most birds is of a milky white color; but the direction of the winking in a vertical and not in a horizontal or slightly oblique plane proves this belief to be erroneous. An examination of a number of skins of this bird showed both upper and lower eyelids to be clothed with short pure white feathers.

Coues in his *Key to North American Birds,* 5th Edition, 1903, says of the nictitating membrane, or "winker" as he calls it: "While the other lids move vertically and have a horizontal commissure, the winker sweeps horizontally or obliquely across the ball from the side next the beak to the opposite." In Newton's *Dictionary of Birds,* vol. I, pp. 233 and 234, there is a curious error, for it is stated that the nictitating membrane arises from the "upper outer margin of the eye" and is pulled towards the "inner angle". The rudiment of the nictitating membrane, which is a fold of the conjunctiva, may be seen in the *inner* angle of the human eye.

I had previously seen several wild birds wink with their eyelids as well as with their nictitating membranes, but as those in captivity are more easily studied I have recently watched a number of birds in zoos, with the following results: Several parrots winked frequently with their upper eyelids which were nearly white in color. When asleep, they covered most of the eyeball with the lower lid, a small portion only with the upper lid. Exactly the same may be stated of the Great Horned Owl where observations were easily made upon captive birds. A Canvasback Duck asleep had its eyeballs covered with the lower lids which were clothed with fine white feathers. From time to time it opened its eyes, but I did not see it wink.

A Golden Eagle that remained in the same position on the ground for over an hour, and who looked sick, winked frequently, sometimes rapidly, but generally slowly with its milk-white nictitating membrane, which moved from the inner to the outer angle of the eye. A California Murre, disabled by oil on the shore at Pacific Grove and too exhausted to move when I approached it closely, winked frequently and slowly with its milk-white nictitating membrane. My impression is that sick birds are apt to wink often and generally slowly with their nictitating membranes which are easily distinguished from the lids. In vigorous and wide-awake birds, my observations would lead me to think that, as a rule, the nictitating membrane is flashed very quickly across the eye.

It is sometimes stated that birds cover their eyes with the nictitating membrane when under water, as in the quotation from Grinnell and Storer above. As these membranes are translucent and not transparent, this action is highly improbable, for the membrane would obscure the sight of the bird in its search for food. Moreover, it would be unnecessary to protect the eyes thus, for even man is able to keep his unprotected eyes open under water. In the case of the captive Canvasback Duck, I succeeded after long watching in seeing its eyes open under water, not covered by the nictitating membrane.

Boston, March 24, 1925.

CHENDYTES, A DIVING GOOSE FROM THE CALIFORNIA PLEISTOCENE

WITH SET OF DRAWINGS

By LOYE MILLER

SOME MONTHS ago Dr. Frank C. Clark of Santa Monica, California, placed in my hands for description, a small collection of bird bones which he had accumulated while collecting invertebrate remains from a Pleistocene deposit just north of Santa Monica. This exposure is presumably part of the Upper San Pedro horizon of Ralph Arnold (Mem. Calif. Acad. Sci., III, 1903), although a check of the invertebrate fauna has not been carefully made. The accumulation is typical littoral marine such as is exposed at the lumber yard, one of Arnold's collecting stations. The matrix is heterogeneous sand and gravel laid down in shallow water, rich in molluscan remains and containing water-worn specimens of numerous vertebrates. The bird remains here discussed have all undergone change in composition comparable to those specimens taken at the lumber yard in San Pedro. The organic matter appears to have entirely disappeared, leaving the specimens very porous and highly absorbent like unglazed pottery. Much mineral matter seems to have been laid down within the tissue and the specimens clink together with a vitreous sound; but the larger cavities have not been filled by crystals.

At least three species of birds are represented in the collection, only two of which are determinable. One of these two still survives as a common member of the local avifauna, the Farallon Cormorant. The other species is of especial interest as representing a gigantic species of diving anserine, heretofore unknown to science. The size of the bones at once suggested a goose as large as *Branta canadensis*; but even a casual comparison with *Branta, Chen, Anser,* and *Coscoroba* brings out osteological differences that set it off from any of the living geese. Our typical geese are great walkers and relatively poor divers. They have long slender tarsi and the cnemial crest of the tibia is thrust well forward, allowing a greater degree of straightening of the knee joint.

In the more expert diving species such as the Surf Duck and the Buffle-head, there is a tendency toward the erect position of this process that reaches a climax in the grebes and loons. In the Surf Duck at least, the walking position when on land comes almost to the erect posture of the true divers. The inability to straighten the knee joint is perhaps one of the determining factors in this body pose.

The distal end of the tibia in typical anserines displays a pronounced curve toward the median line, an effect that throws the condyles off the main axis of the tibial shaft. This excentricity perhaps reaches its maximum in the swans, is less in river ducks and the geese, and shows in the Surf Duck the minimum degree that I have observed among the living species. The fossil bird surpasses *Oidemia* in this character.

In all these respects the big goose-like fossil is a diver—really a sea duck as big as a Canada Goose. Presumably his habits were those of the Surf Duck which winters along our southern California shores, feeding almost in the surf and rafting just outside the breaker line.

The specimens were generously donated by Dr. Clark and the type has been deposited in the Museum of Paleontology at Berkeley.

Chendytes lawi, new genus and species

Type specimen, no. 27001, California Museum of Paleontology, tibio-tarsus, Pleistocene of Santa Monica, California. Size of *Branta canadensis* but shaft straighter with condyles less displaced toward axial plane; tibial condyles more nearly equal in size

than in most modern anserines; cnemial process rising straighter above the articular face. Other characters of the cnemial region are evident on comparison but are difficult to express.

Associated in the deposit with the tibia designated above as the type, there was also found a complete tarso-metatarsus. The location in the matrix was such as to afford much weight in assigning the tarsus to the same species as the tibia, and the size and the osteological character of the two are very much in harmony, so that such

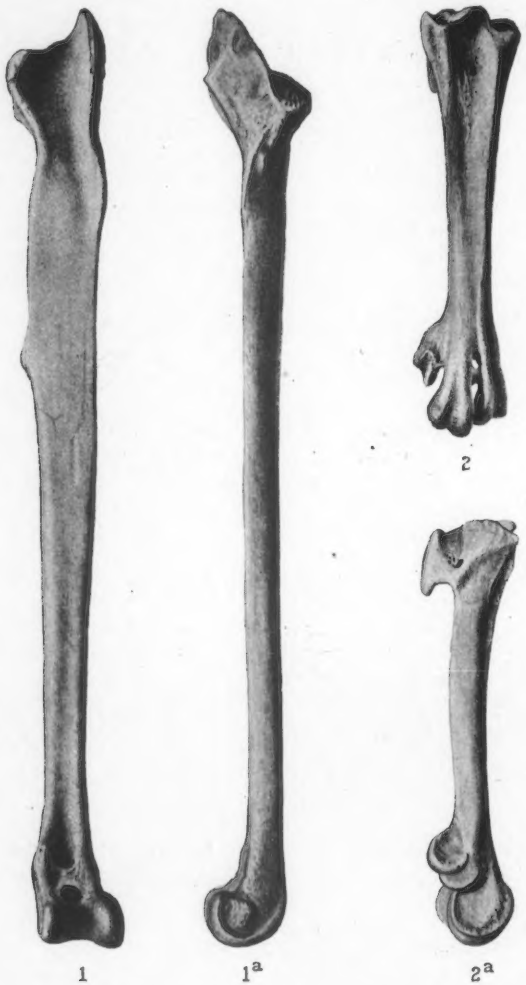


Fig. 40. CHENDYTES LAWI. 1, 1a, TIBIO-TARSUS; 2, 2a, TARSO-METATARSUS. FIGURES APPROXIMATELY NATURAL SIZE. FROM DRAWINGS BY J. L. RIDGWAY.

assignment is hazarded. Its short, stocky proportions and concave anterior profile at once suggest the surf ducks and separate it from the geese. Comparison was made with *Arctonetta fischeri*, *Somateria v-nigra*, *Oidemia deglandi*, and *Oidemia perspicillata*. The closest resemblance is with *Oidemia perspicillata*. From this species it differs in the greater relative thickness of the shaft, the less elevated outer margin of the anterior face, and the greater concavity of this profile longitudinally. At the proximal end the bone shows a different ratio of transverse to sagittal diameter, the sagittal diameter being relatively less. In an uncorroded bone of the fossil species this disparity would be even greater. When viewed from the rear, the fossil shows a degree of flattening in marked contrast with the Recent bird, which has the inner margin much elevated and the plane of the posterior face much inclined toward the outer side. This character of the fossil is due only in part to corrosion. The inner trochlea is raised and is slightly separated from the middle trochlea, as compared with the Recent bird.

A single vertebra in the collection represents an anserine species about the size of *Branta canadensis*. It may properly have come from an individual of the species under discussion.

This species is named in honor of Mr. J. Eugene Law, whose continued efforts, both biological and administrative, have materially advanced the cause of ornithology in the western United States.

Phalacrocorax auritus (Lesson)

There are two fragmentary tarsi in the collection that are not distinguishable from the surviving Farallon Cormorant. The material represents both proximal and distal extremities of the bone and the greater portion of the shaft in each case, so that, despite much corrosion before entombment, the specimens are considered determinable.

Los Angeles, California, April 15, 1925.

PELICANS VERSUS FISHES IN PYRAMID LAKE *

By E. RAYMOND HALL

THE PYRAMID LAKE region of Nevada has acquired great popularity of recent years on account of the excellent trout fishing there. The trout grow to great size. Of the several hundred individuals seen by the writer as taken from Pyramid Lake during the summer of 1924, none weighed less than three pounds, and several were seen that weighed 22 pounds; there are authentic records of much larger ones.

During the past few years, however, the trout have been decreasing in the lakes of that region (Pyramid, Winnemucca and Walker); also, and more especially, in the streams which feed these lakes. Apart from the interest of the sportsman, the fishing industry is of considerable importance for the reason that Reno and the other towns in the region secure a large part of their supply of fresh fish from these waters. Most of this supply comes from Pyramid Lake itself. This lake is a part of the Piute Indian Reservation, and some of the Indians depend as a means of livelihood wholly, and many depend in part, upon the taking and marketing of these fish. Also the

* Printed here by permission of Dr. Edward W. Nelson, Chief, Bureau of Biological Survey, United States Department of Agriculture. The writer acknowledges critical assistance in the preparation of this paper from Prof. J. Grinnell, Department of Zoology, University of California.

Indians depend in a great measure upon the trout that they dry for a winter food supply for themselves. Formerly the trout were taken thus late in the fall when they ascended the Truckee River to spawn.

The White Pelicans that nest numerously at Pyramid Lake are seen to catch fish; and many people believe that they destroy large numbers of trout. Local sportsmen and others interested in preserving the fish, especially the trout, have made numerous requests to the United States Department of Agriculture to have the relations of the pelicans to the fishing industry investigated. In answer to these requests the writer was delegated by the Bureau of Biological Survey of the United States Department of Agriculture to make a study of the food habits of both the young and old pelicans, and also to ascertain if possible what have been the causes of the decrease in the number of trout. The work, undertaken in the summer of 1924, was carried on under the supervision of Mr. W. L. McAtee of the Division of Food Habits Research of the Bureau of Biological Survey.

Pyramid Lake is known to have been a breeding place of the White Pelican (*Pelecanus erythrorhynchos*) from the time the first white man settled in the region until the present. According to Indian lore, the birds were there for countless years preceding the advent of white men. Pyramid Lake is situated thirty-three miles northeast of Reno, Nevada. The lake is thirty miles long and five to twelve miles wide. Its long axis extends in a north and south direction. High mountains rise abruptly on the east and west. Low terraced hills separate it on the north from Mud Flat Desert, a part of the Quaternary Lake Lahontan, of which Pyramid Lake is a remnant. On the south are the flats of the Truckee River Valley and low bordering foothills through which the Truckee River, the only stream flowing into the lake, descends. The lake has no outlet, the water being lost by evaporation. Although the water is brackish, and on this account unfit for human consumption except near the mouth of the river, it is not so alkaline as to prevent the existence of plentiful fish life; at least seven native and four introduced species of fish thrive there.

The pelicans of this entire region resort for nesting to Anaho Island, which lies in Pyramid Lake nine miles north of the mouth of the Truckee River and one mile from the east shore of the lake. In this region no other breeding ground is known. The body of this island is three-fourths of a mile in diameter; there is a low narrow peninsula one-half mile long, extending to the southeast, and another of less length extending to the northeast. The island is 400 feet high and flat topped. It has one large terrace 100 feet above the water and other smaller ones at different altitudes, all marking former shore lines. The original rock formations are largely concealed by curious and fantastic coatings of calcareous rock which is formed by the deposition from the lake water on algae. There is no water on the island and vegetation is scanty.

Study of the food habits of the White Pelicans in this region was carried on between May 15 and August 3, 1924. At regular intervals during this time nine visits of one to three days duration were made to Anaho Island to study the food habits of the young. On June 5, thirteen colonies were located, which ranged in size from 11 to 791 nests. No correlation was found between the situation of the colonies and intensity of sunshine, direction of prevailing wind, elevation, occupancy of former colonies, or time of hatching. The colonies were distributed on all sides of the island. In vertical distribution they varied from four feet above water level to the top of the island. One colony was on ground showing no signs of having been occupied in former years. The others were on old nesting sites, as attested by bleached bones of pelicans of varying ages, egg shells, old nest mounds, and dead shrubbery. Several

clearly marked nesting sites of previous years were unoccupied. The two colonies on top of the island hatched at the same time as did one only eight feet above the water.

On this island the two positive distributional factors for location of nesting colonies seem to be level or slightly sloping ground and some loose top-soil. Slight excavations made at all points where these conditions obtained, revealed bones and egg shells of former colonies, except on the newly formed beach from which the water had receded only within the last two years. There are, then, more suitable nesting sites, of various sizes, than there are birds to occupy them, and some changes are made in nesting sites from year to year. One factor possibly determining this choice of different nesting sites from year to year, is the size of each flock as it arrives in the spring, if, as Evermann (1923, p. 18) suggests, the flocks that arrive together nest together.

Even when unoccupied by the white birds, the colonies are discernible at a great distance. This is due to the white excrement that covers the ground and to the paucity of vegetation most of which is killed by occupancy of the birds.

The nests consist of gravel and any rubbish present, which the birds rake into piles. Such piles were found not to exceed 8 inches in height and 2½ feet in diameter. The eggs are laid in the concave tops of these mounds. In the smaller colonies the nests are spaced the distance of the combined lengths of two birds' necks (see Grinnell, 1908, p. 189), but in the larger colonies they are often spaced two feet or less apart.

On June 5 and 6, 4534 nests containing 816 young and 6234 eggs, or a total of 7050 eggs and young, were counted in the 13 colonies, and some eggs were known to have been taken from the colonies before this date. The numbers of nests classified by content were as follows:

Nests with 1 egg	1851	Nests with 2 eggs and 1 young	1
Nests with 2 eggs	2075	Nests with 1 young	197
Nests with 3 eggs	19	Nests with 2 young	214
Nests with 1 egg and 1 young	184	Nests with 3 young	2

The two colonies on top of the island suffered less than the others from interference by men, both before and after June 6, hence they were better indexes of conditions under natural factors than the others. June 6 most of the eggs in these two colonies were pipped, and all hatched within the next few days; the laying period thus had passed. At this time the two colonies together contained 862 nests with 102 young and 1367 eggs, or a total of 1469 eggs and young. The numbers of nests classified by contents were as follows:

Nests with 1 egg	231	Nests with 2 young	9
Nests with 2 eggs	528	Nests with 1 young and 1 egg	70
Nests with 1 young	24		

From 607 out of 862 nests having 2 or a potentiality of 2 young, a mode of 2 and mean of 1.72 is obtained. Three was the greatest potentiality found in any one nest. Bendire (1882, p. 130) in speaking of the numbers of eggs found in the nests of this species at Malheur Lake, Oregon, says: "Each of these contained generally two eggs, although three and four to a nest were by no means rare, and occasionally I found as many as five, all evidently laid by the same bird." At Pyramid Lake my observations of nests containing more than two eggs led me to believe, in most cases, that additions to the usual number had come from other nearby nests. Eggs were often found lying about between the nests, and in many cases the shape of one egg in a nest of three suggested that this egg had not been laid by the same bird that had laid the other two.

Early in June single eggs were several times found in the water about low-lying rocks where the pelicans were in the habit of sitting during the day. This habit of occasionally dropping an egg wherever the bird happens to be is known to be common to many species. Hanford (1903, p. 50) in speaking of the White Pelicans at Washoe Lake, Nevada, says: "Three eggs were found a foot under water in June, but no nests have been found for a number of years."

But little is known with respect to the length of the incubation period. In different colonies, several nests containing one egg each on May 29 and two eggs each on June 5 were marked for the purpose of determining the length of the incubation period. Unfortunately all the colonies in which such nests were selected were destroyed by reason of interference by man. Bendire (1882, p. 130) states: "Eggs placed under a domestic hen hatched in twenty-nine days . . .".

From actual counts of 8500 adults made on the island between 12 A. M. and 4 P. M., June 21 and again June 22, and the estimate of 1500 at other places away from the island, based on the average of actual counts previously made at these various other places at the same time of day, the total number of adult pelicans present in the Pyramid Lake region was placed at 10,000. This is, therefore, the largest colony of White Pelicans known to be in existence today.

Seven of the thirteen colonies hatched the first and second weeks in June. All the eggs, with the exception of infertile ones, in each of the colonies hatched within a few days of one another. One colony on May 29 had nests in all stages of development from one nest with one young over half grown and four other nests the eggs in which had hatched, to nests with one fresh egg. The colony in question thus would have shown a more prolonged hatching period than any of the others that did hatch had it not later been destroyed. In five other colonies no eggs at all hatched by reason of interference by man.

The young remained in the nest until they had attained a weight of 3 or 4 pounds. At this stage they were approximately one-third grown. Thereafter, young so marked that they could be identified left the nest during the day but returned to the original nest mound at night, where they were covered by one of the adults. This continued until the young attained a weight of 6 pounds, being then nearly half grown. After this time they would huddle together in "pods" during the night. All old birds would then be congregated along the lake shore. The young also collected in pods during the day, when intruders entered the colony. The birds farthest away showed little fear, and progress was made by those in the rear scrambling both over and around those in front. When the flock came to rest, the heads of the birds were held high and the yellow pouches that fluttered with every breath resembled leaves in a breeze.

Loss of the horny growth on the bills of adults began at the time the eggs commenced to hatch and was practically completed throughout the adult population within a month. Early in June while observing a nesting colony I noted that the birds incubating eggs lacked the horny growth on the bill, while nearly all of those birds that were merely resting about the borders of the colony, not on the nests, possessed the horny growth on the bill. At that time I assumed that the horny growth was present in the males only. However, it appears to be well established that both sexes possess the horny growth on the bill in the breeding season (see Ridgway, 1877, pp. 633-634). If, as seems to be the case, both sexes possess this horny growth during the breeding season, my observation suggests either that the horny growth is retained longer by one sex than by the other, or that it is retained longer by non-nesting birds than by those incubating eggs. Both suggestions might be found to be true. However that may be, this is an interesting point for future observers to determine. The same

is true of the care of the young. Three adults that had just returned to the colony with food for the young were secured and all were females. Two young in one nest and one in another nest were marked with paint and were never observed to have been fed other than by similarly besmeared adults. According to Skinner (1917, p. 180): "Both sexes share in the incubation duties, nest relief taking place near noon each day, and, I have reason to believe, again at midnight." If both sexes share in the duties of incubation it would seem likely that they should also assist in feeding the young, but this is apparently not definitely known.

Practically all the young in the two colonies on top of the island hatched June 7 and 8, and, with the exception of a few runts, remained uniform in size throughout their development. On July 11 an average young one weighed 7 pounds, being half grown; and when I last visited the colony, which was on July 30, the young weighed 11 pounds and could not yet fly. On July 30, young in a colony which hatched May 27 to 29, weighed 12½ to 13 pounds. They were 62 to 64 days old at this time, weighed 1 to 4 pounds less than adults, and were making their first flights. When three-fourths grown the young start stretching and flapping their wings. In this manner these young are soon able to lift themselves a few inches off the ground. Thus by running and flapping the wings they gradually develop the power of flight until the time comes when they start down some steep incline to the water, as the impulse seizes them, or when frightened by intruders, and their flapping wings carry them into the air. They flap awkwardly for a distance, slipping from side to side, and seem always on the verge of crashing to earth, when they at last set their wings more or less firmly and volplane some distance out in the current of air rising against the side of the island. By alternately sailing and flapping they reach the lake and tumble into the water with a huge splash. In such cases the well-wishing observer does, and well can, heave a sigh of relief, for not all maiden flights end so well. If the young birds become frightened at the observer, he is a misplaced intruder and causes many precocious attempts at flight that result in young not maintaining the air but plunging to their death down some steep incline or cliff.

Young, in the colonies near the water, descended to the lake when two-thirds grown and swam near shore during the day but returned to the colonies at night. They were enticed to the lake shore by the old birds that fed them. I never observed that the young were led down from the colony directly to the water, but I did see many of the old birds alight some distance from the colony toward the lake when bringing in food, and the young descend to them. In this way the colony would be led a considerable distance in a short time, since, though the adults fed only their own young as indicated by the behavior of the adults and young that I marked, all the young hastened to any adult landing in, or near, the colony. After a few days on the water and along shore the young remained there for the night. However, they soon wandered to other parts of the lake. Young, easily recognized by their short bills, were seen on the west lake shore August 2, fully five miles from the island. They were still being fed by the old birds.

Feces were voided anywhere in the colony. The young birds became more or less covered by it as a result of their habit of collecting in pods. In no place, however, did I find guano in sufficient amounts to be of any commercial importance. Large numbers of dead young and some fish in various states of decay were found at all the colonies. All these combined to produce a characteristically disagreeable odor.

Man is the most destructive enemy of the White Pelican, and, though unintentionally so in most cases, the results of his activities are none the less disastrous. Most of the eggs in one colony, as evidenced by my finding the fresh nest mounds without

eggs, and the tracks of the marauder, had been taken by man. These were probably used for food, since shells were found at a deserted Indian camp on the east lake shore opposite the island, at a later date. Pyramid Lake is annually becoming more and more popular as a fishing and summer resort, and people often visit the pelican colonies as one of the main points of interest at the lake. Winds sometimes arise that prevent these people from leaving the island, and fires are kept burning throughout the night for warmth, which causes all the pelicans on the side of the island on which the fire is built, to remain off their nests. The low temperature at night kills the developing embryos and newly hatched young. In 1924, marooned pleasure seekers were less disastrous in this respect than the Indian fishermen who made two camps near the colonies that, as a result, failed to hatch. In all, 7 colonies of 2609 nests containing 3977 eggs and 6 young were destroyed in this way. In addition, 1250 of these nests contained only one egg, a large proportion of which, when broken, proved to be fresh; thus the laying period was not over. Assuming that when laying was completed, the same relative number of nests with one egg would remain as in the colonies on the top of the island, where the laying period had passed, there would have been only 539 instead of 1250 nests of 1 egg, or a total of 4694 eggs and young, instead of 3983 eggs and young as counted. The old birds are wary and do not return to the nests for some time after being frightened off. This results in many of the young during the day succumbing to the intense heat. Young 1 to 5 days old appear to be more seriously affected when left unprotected in the heat of midday than do those just emerging from the egg, or those more than 5 days old. When frightened off the nests the old birds strike the ground with the feet several times before getting into the air, and in so doing they break large numbers of eggs and cut and mutilate many small young. After the young leave the nests, intruders do harm by causing the young to collect in pods, the smallest and weakest birds being trampled upon and left lying upon the ground completely exhausted and sometimes with broken wings or legs. Later, when the young are two-thirds or more grown, sight of an intruder may cause them to rush over some cliff or precipice, with a high percentage of fatality. Frightening the old birds away from the eggs leaves the latter at the mercy of the California Gulls, large numbers of which are always hovering about.

Considerable mortality is also due to the fact that one egg in a nest of two practically always hatches one to three days before the other, and the larger of the two young pecks, sometimes partially swallows, and otherwise continually persecutes, the smaller. The head and especially the eyes of the smaller young one often become raw from this persecution, and in these extreme cases death always results.

Both young and adults are heavily infested by insect parasites. One kind of Mallophaga parasitizes them externally and another lives attached to the inside of the pouch and roof of the mouth. The latter parasite, with mention of its habitat, was described by Leidy in 1878 (pp. 100-101) under the name *Menopon perale*. Leidy at that time had specimens of this louse from the pouches of White Pelicans taken both in Florida and on the Red River of the North. Inhabitants of the region assert that birds badly infested with lice remain apart from the others. This may be so, but all the adults that I secured had a goodly share. Careful investigation of many trout failed to show any *Dibotherium*, a parasite of trout to which the White Pelican is said to be an intermediate host in some regions.

The potentiality of 7050 young, which excludes eggs known to have been taken by Indians, and eggs that probably would have been laid in incomplete sets, resolved itself by actual counts into 1562 young June 21 and 22, 1404 July 5, and 1048 young July 29. Of these 1048 live young, enough were sick and possessed of broken wings

to prevent probably no more than 950 from leaving the lake. The potentiality of 3067, from the colonies that did hatch, then, produced 950 young able to leave the island. Had the same relative number of young been produced from the potentiality of 3983 in those colonies that did not hatch, as was produced from the colonies that did hatch, 1233 more young would have been able to leave the island. Considering the percentage of nests in these destroyed colonies that would have had one more egg, the number is increased from 1233 to 1453. This, then, holds man responsible for the destruction of 60 percent of the young, and does not take into account eggs taken by Indians for food, eggs broken and young killed by the old birds when frightened off the nests, young killed by collecting in pods or by plunging over cliffs upon the approach of intruders, or destruction of eggs by gulls when the adult pelicans are frightened away from the colonies or by other "natural" causes. My estimate, based in so far as possible upon actual statistics, assigns to the different factors mentioned the following percentage values of total destructiveness to young: man, directly and indirectly, 75 per cent; infertile eggs, annoyance of smaller of two young by larger, insects, gulls and all other natural causes, 25 per cent.

It is interesting to compare the present condition of the pelican colony on Anaho Island with conditions noted by others in earlier years. Ridgway (1877, pp. 627-635) furnishes much interesting information regarding this colony, which he visited in May, 1868. At that time California Gulls also nested on Anaho Island. In 1924 one nest with a single egg, that was subsequently deserted, was the only nest of the California Gull found on this island. While Ridgway makes no estimate of the numbers of pelicans present in 1868, he mentions finding only one colony. This colony was located on the northeast arm of the island and on a site still used for nesting by the pelicans. In 1924 the colony on this point was among those destroyed before they hatched. Ridgway's visit was made in the middle of May and it is probable that not nearly all of the birds had yet begun to nest. At least all had not begun to nest by this time in 1924. In speaking of his visit at this time, Ridgway (1877, p. 630) says: "In May, 1868, the lake was again repaired to, and at this time we found the Pelicans in as great abundance as during our visit the summer previous; . . .". The visit in the summer previous was in August, 1867, and in giving an account of this visit he mentions *thousands* of pelicans being present.

Russell (1885, p. 63) states: "During our visit to Anaho Island in August, 1882, there were two large pelican 'rookeries,' in each of which there were 600 or 800 young birds." In August, 1882, there were, then, 200 to 600 more young pelicans on Anaho Island than there were in late July of 1924. However, considering also the number of young that would have come from the colonies that were destroyed before they hatched in 1924, the number of young in August, 1924, could have been greater by 1000 than the number reported by Russell in August, 1882. We, of course, do not know that colonies were not also destroyed before they hatched in 1882. Very probably they were, if the Indians camped on the island to fish in the surrounding waters. According to statements made by the Indians themselves they have always taken eggs of the pelicans for food and within recent years have practiced this habit less than in former years. On July 7, 1903, Chapman (1908, p. 378) found eight distinct colonies ". . . containing in all, 4000 young Pelicans and one hundred and eighty-nine eggs." Two days earlier in the month, in 1924, only 1404 young pelicans were found on the island. The suggestion may be made that several of the colonies present earlier in the season may not have been noted by Chapman. In 1924 by July the young of many of the smaller colonies had migrated to larger nearby colonies and the number of colonies had been considerably reduced.

Evermann (1923, p. 18) who visited Anaho Island in June, 1917, and on June 3, 1921, found on the latter date thirteen colonies with a total of 2381 nests and estimated the total number of nests on the island at 4181. The number by actual count on June 5 and 6, 1924, was 4534. Evermann (1923, p. 18) estimated that the number breeding on Anaho Island in 1921 was 20 to 30 per cent less than the number that bred there in 1917. Were there 20 per cent more in 1917, the number of nests, based on Evermann's estimate for 1921, would have exceeded 5000. If this be correct, there were more pelicans at Anaho Island in 1917 than in 1924. Figuring on a basis of the colonies that did hatch, there could have been, had not man destroyed part of the colonies, 3561 young pelicans on July 5, 1924. Even this is 439 less than the number found by Chapman on July 7, 1903. While several probable chances of error, which, possibly, may offset one another to some extent, are present in making comparisons between the numbers of pelicans present in 1924 and in previous years, the comparable data that is available tends to show that there has been a decrease in numbers within recent times. Certainly, fewer young were reared in 1924 than in previous years if we may accept the statements of Russell, Chapman, and Evermann.

The adult pelicans are slow on land. They throw the body from side to side as they walk. The young are extremely clumsy, and tumble over any small obstacle that happens to be in their path, and often when there is none, when they try in the least to hurry. The birds are graceful in the air, having great soaring powers and a fairly rapid flight. They seldom demonstrate their swimming powers, usually flying from, instead of swimming from, an intruder. Some young, able to fly only a little, were pursued by me in a motor boat and their maximum swimming speed was estimated at three miles per hour. They did not seem greatly frightened and were perhaps not making their best efforts.

The species is decidedly gregarious, nesting, roosting, and feeding in flocks. The birds are apparently a social lot, adults seldom manifesting hostility toward one another. They are not particularly courageous or curious, taking wing at some distance when approached, and readily deserting their nests during the day. One can, however, with a spot-light, approach them on their nests at night, and here they show considerable courage, striking viciously with their formidable bills when molested; and they often suffer no small amount of annoyance before deserting their nests. They manifest considerable intelligence both in avoiding their enemies and in securing their food. They apparently have a poorly developed system of communication, but are keen observers of the actions of one another, which may, in many ways, compensate for their lack of communication by voice. They post no lookouts about the colonies.

The pelicans prey on various species of fish and in turn furnish considerable food to the California Gulls, large numbers of which are usually to be found about the colonies waiting to dodge in at every opportunity and snatch up fish, as well as, in the earlier part of the season, eggs. Turkey Vultures feed on the carcasses of the young pelicans that die. Three lizards, *Uta stansburiana stansburiana, Sceloporus magister* and *Cnemidophorus tessellatus tessellatus,* are found in greater abundance about the pelican colonies than elsewhere on the island, perhaps because insect food is more abundant there.

The adult pelicans begin their daily foraging soon after the first streaks of light appear in the east. Some are to be seen foraging throughout all hours of the day during the incubation period, but many collect in flocks and remain at the sides of the colonies of sitting birds throughout the middle of the day. Others collect on the long southeast arm of the island, on the lake shore, and on low rocks in various parts of the lake. The sitting birds usually leave the nests only in the early morning or late

afternoon or evening. After the young hatch, most of the old birds remain away from the colonies throughout the day, but apparently all return in the evening to the shores of the island to roost. As soon as the young are a few days old, the old birds spend their entire time foraging for their young and themselves, and were to be seen fishing at all hours of the day. Also pelicans were often heard fishing along the shores of the lake in the early hours of the night. Many of the pelicans do not return to the island until well after dark, sometimes returning in flocks of more than a hundred each.

The adults collect where schools of fish are located. When these are some distance out in the lake the fishing is done individually, each bird making quick thrusts of the bill, when the fish of their own accord come to the surface or when driven to the surface by trout that dash through the schools. When the fish are found in shallow water near shore, groups of pelicans align themselves in a semicircle and work toward shore, beating the water with the wings and feet. When they reach shallow water near shore, a general melee results as the birds scoop up the fish.

When pelicans fish individually, several fish are sometimes secured at one scoop of the bill. Generally, however, only one fish is secured at a time and this is accomplished by a quick thrust of the bill. The fish is grasped between the upper and lower mandibles, the point of the bill is raised upward, and the fish slides down the capacious gullet. Fish are not retained in the pouch while more are being secured, but pass directly to the stomach, or to the esophagus if the stomach is filled. Pelicans frequently fish until the esophagus up to the mouth is filled and greatly distended. This condition makes it difficult for the birds to rise from the water.

A clear and simple conception of the way in which this food securing and storing apparatus functions is to imagine an extremely distensible tube widening out at either end, anteriorly into the pouch, and posteriorly into the stomach. The pouch is not a separate receptacle. When food is placed in the pouch and the head is slightly raised the food slides down the gullet. The skin of the pouch, however, being highly elastic, permits the holding of fish in it while the bill is directed downward, and this greatly assists in the capture of a large fish. A mechanical arrangement in the articulation of the lower jaw with the quadrate bone spreads the rami of the lower mandible as the mouth is opened, facilitating the scooping up of fish and the handling of a large one. Sharp longitudinal ridges on the upper mandible also facilitate the holding of fish when grasped between the two mandibles. Some of the adults have the bill decurved. The Indians ascribe this to hard battles with large fish, but I do not see how this could cause the upper mandible to become bent downward.

Only once out of the hundreds of times I saw pelicans attempt to catch fish did I see one do so by diving. In this particular case the pelican was describing a horizontal flight-line fifteen feet above the water, when it suddenly dived head foremost and was completely submerged. In all other cases when I saw pelicans after fish they struck the water with quite a splash and oftentimes extended the feet forward as skids. Skinner (1925, p. 140) also records an instance of a White Pelican diving. This, however, was from a position on the water and not from the air. Another habit, explicable on a basis of seeking food, but noted only after July 15, was that of 12 to 25 birds flying low over the water in single file, with the leader now and then rising and immediately descending to the original level. All the other birds followed the leader's path, making it appear as though they were hurdling an invisible obstacle. The connection between this behavior and fishing was suggested as a possibility by my observing the birds to descend into the water on a school of fish directly after one of these rises as though they had been aloft to better inspect what lay below.

When feeding small young, the old one lays its bill on the ground sidewise and regurgitates food into the pouch for the young one to help itself to. When over half grown the young one thrusts its head down the old one's throat. When they have reached this stage of development all the young of a colony rush to any adult which happens to alight among or near them and attempt to thrust their bills down the old one's throat. The old one is more discriminating, however, as I determined by marking individuals. An adult looks about among the milling group until its own young reaches it, whereupon the young is allowed to thrust its head down the old one's throat. Young, three-fourths grown, in two cases kept the head down the old one's throat 2 minutes, and in a third case 2½ minutes. When this large, the young one thrusts the head as far down the old one's throat as possible, and from the length of its bill and neck it would seem that it must reach the stomach of the old bird. One female was shot immediately after she had finished feeding her two young and the stomach proved entirely empty.

Though as many young as can, crowd around and attempt to thrust their bills down the old one's throat, the latter quickly disposes of them with a few passes of the bill. Even when untouched, they grovel upon the ground and flap the wings in a most ludicrous manner, now and then raising the head slightly as though to steal a glance to see whether their supplications had caused the old one to relent. Young, with the bill in the old one's throat, are loth to cease probing for food and have literally to be thrown and jerked loose by the old bird. They invariably try for more, but one pass of the old bird's bill sets them to groveling on the ground.

After feeding, the young are often so full that they can hardly move about. They readily disgorge their food when molested, after becoming about one-fourth grown, but less readily before this time. When the intruder walks in the opposite direction from the young, they often follow back and pick up this disgorged food.

I did not find that adults left piles of fish about the colonies for the young to feed upon as needed, as some observers have described. The piles so observed were probably the stomach contents of several young pelicans, disgorged in one place. Such a communistic scheme seems improbable, furthermore, since marked individuals fed only their own young, the young seem always to be hungry, and the old birds feeding young proved to be quite lean when shot and appeared to have their entire time fully occupied in securing enough food for their own young.

The White Pelican eats the fish food that is most easily secured. When I first reached the lake, May 13, the Red Sucker was spawning in the shallow water along shore and constituted a part of the food. Lake Minnows constituted a majority of the food items throughout the summer. Lake Chubs were taken in largest amounts early in June while spawning, and a few were secured throughout the season. In July, when hot weather came, Carp came up near the surface of the water and were taken in considerable numbers. Sacramento Perch were taken throughout the season. Catfish were found on three occasions only, June 5, July 18, and July 30. Trout were represented by flesh and mature eggs disgorged July 15 by two young birds. Ribs of these trout were found to correspond in size with those of trout weighing 8 pounds. The minimum and maximum lengths in inches of the other species of fish identified in the food of the pelicans were as follows: Catfish, 4 - 9; Sacramento Perch, 4 - 14; Lake Chub, 4 - 14; Lake Minnow, 3 - 13; Red Sucker, 8 - 15; Carp, 1 - 27.

It should be noted that several trout were found dead in the stagnant pools of water in the lower part of the Truckee River a few days before the trout remains were found on Anaho Island, and that these remains probably represented trout taken

under such conditions. That the White Pelican is a scavenger was demonstrated by their taking Sacramento Perch, Lake Minnows, and Badger flesh that I placed in the water. I doubt that trout are ever taken by pelicans in either of the two lakes, for the reason that trout are deep water fish and hence seldom come within reach of a pelican. I found no evidence of small trout living in the lake. Under conditions of normal water supply the larger individuals of *Salmo henshawi* are said to migrate up the river in the winter months to spawn and return early in the spring, during most of which time the pelicans are not present. These circumstances indicate that the trout found were accidental food items and for this reason they are not included in the table of fish eaten by the pelicans.

The results shown in the following table were arrived at by recording by length the different fish found, and by taking the average weight of the different lengths of each species from several specimens. Stomach contents of the pelicans were weighed to determine capacities. Young of different ages were marked and watched from concealment throughout the day to determine the number of times they were fed. This was usually twice daily. Adults were also marked, and while this resulted in definite data regarding the relation of adults to young, the adults could not be accounted for during most of the day, since they range widely. However, from having observed the activities of the birds as a whole, I feel no hesitancy in saying that the adults also fed themselves twice daily.

Account was kept of the age and weight of young in the colonies, and the amounts of food that they ate at different ages was recorded. For instance, when 10 days old they ate ½ pound per day; 30 days old, 2 pounds per day; 55 days old, 4 pounds per day. Four pounds per day was also found to be the amount eaten by adults. It was concluded that a total of 150 pounds of fish was required to raise one young pelican to the age when it could fly, which was 62 to 64 days. Figuring from the counts made of live young at different dates, the total amount of fish eaten by the young during the summer of 1924, up to the time they could fly, was found to be 193,750 pounds, and 160,000 pounds more from that time to September 30, or 353,750 pounds in all. The 10,000 adult pelicans in the 180 days from April to September that they remained at the lake, consumed 7,200,000 pounds, bringing the total to 7,553,750 pounds or 3,776 tons per season. The fish recorded in the subjoined table are arranged in the order of their economic importance. Catfish are placed first because they are sometimes eaten by both the Indians and the white people of the region. Sacramento Perch are placed second because they are a potential food fish, though I know of only two fishing parties that took and saved them at Pyramid and Winnamucca lakes during the summer of my visit. Lake Chub and Lake Minnow are considered to be of equal rank, since both are seldom utilized by man as food and serve only as food for the trout and fish-eating birds. The Red Sucker apparently figures little in the food of the trout and fish-eating birds and not at all in the food of man. Carp are never eaten by the human inhabitants and are considered a serious detriment to the fishing industry of the region.

Two other fish known to inhabit Pyramid Lake but not recorded among the food items of the White Pelican are the Sand-bar Sucker, *Catostomus arenarius,* of no more economic value than the Red Sucker and less abundant, and the Cui-ui, *Chasmistes cujus,* second in importance only to the trout, since it is an important food fish of the Indians. The fact that the Cui-ui was not recorded among the food items of the pelican in 1924 was due to the low water which prevented it from ascending the river to spawn, at which place the pelicans usually secured it. In the lake it remains in deep water and is never seen.

Not included in the table are the dozens of instances when I have observed pelicans catching fish, which when I went to the spot in a boat, proved to be from schools of Lake Minnow.

FOOD OF WHITE PELICAN AT PYRAMID LAKE, NEVADA

Weights in pounds; percentages are of weight

		Ameiurus nebulosus (Catfish)	*Archoplites interruptus* (Sacramento Perch)	*Siphateles obesus* (Lake Chub)	*Leucidius pectinifer* (Lake Minnow)	*Catostomus tahoensis* (Red Sucker)	*Cyprinus carpio* (Carp)	Total
adults	Number	0	5	7	50	3	7	72
	Weight	0	.7	1.4	11.3	1.4	5.6	20.4
	Per cent	0	3.6	6.7	55.4	7.0	27.2	99.9
young	Number	24	65	248	2370	5	185	289.7
	Weight	2.3	5.3	40.6	350.6	4.2	194.9	597.3
	Per cent	.4	.9	6.8	58.7	.7	32.6	100.1
total for ads. and yg.	Number	24	70	255	2420	8	192	2969
	Weight	2.3	6.1	42.0	361.9	5.6	200.5	618.4
	Per cent	.4	1.0	6.8	58.5	.9	32.4	100.0
	Weight for season	30,215	75,537	513,655	4,418,944	67,984	2,447,415	7,553,750

The pelicans wander far in search of food. Early in May large numbers were reported to have visited Washoe Lake, 50 miles southwest of Pyramid Lake, when a portion of the former lake dried up, and to have feasted upon the fish there. When I visited this lake July 9 and 10, only three pelicans were seen. In the latter part of July they began spreading to other parts of the country. Reliable reports of their occurrence at this time were had from Walker Lake, 80 miles southeast of Pyramid Lake. On August 4 a flock of 14, that may have come from Pyramid Lake, was noted on the Humboldt River, 10 miles west of Beowawe, Nevada, 170 miles northeast of Pyramid Lake; and a similar sized flock was seen at this same place again August 11. At these points different species of fish than those at Pyramid Lake would be taken, but there is nothing to indicate that a larger percent of trout or other fish of economic importance would be taken there than at Pyramid and Winnemucca lakes. In fact, the period spent at these two lakes, the breeding season, would seem, from what is known of the food habits of other fish-eating birds, to be the period during which the pelicans were most destructive to economically important fish.

The stomachs of several dozen trout that I examined contained only Lake Minnows and a few Lake Chubs. However, it cannot properly be maintained that pelicans are indirectly detrimental to the fishing industry by their destruction of fish-food of the trout, for, according to my observation, there is a superabundance of Lake Minnows. Schools many yards wide and approximately 100 yards in length have passed under my boat. Furthermore, the pelicans have bred here and presumably fed on the same kind of fish for many years past, during which time a balance seems likely to have been attained. At present certainly the trout and probably the pelicans are being reduced in number by man, so that the amount of the fish-food of these two animals is surely no less, and probably is more, than formerly, granting that other factors have remained the same.

SUMMARY

The White Pelican is not detrimental either directly or indirectly to the fishing industry of the Pyramid Lake region. However, local sentiment is in the main antagonistic toward this bird, because it is *believed* to eat large numbers of trout. With the increasing popularity of Pyramid Lake as a summer resort, and with the present lack of protection accorded this bird, the species will, in no great length of time, cease to breed there.

It is true that trout are decreasing in numbers, both in the lakes and in the rivers of the region. This is due to a multiplicity of causes. Most important of these is the depletion of water in the Truckee River. Formerly, between October and June, the common trout of Pyramid and Winnemucca lakes, *Salmo henshawi,* ascended the Truckee River to spawn. Fish culturists say that this, like some other species of trout, requires running water to insure fertilization of the eggs, hence it cannot reproduce in the lakes. Insufficient water in the Truckee River at the critical season not only prevents most of the fish from reaching their spawning grounds, but results in the death of those fish that do get into the river. On May 17, dozens of *Salmo henshawi,* weighing from 5 to 18 pounds each, were found dead in pools of the Truckee River just below the Indian Reservation Dam. Conditions of this kind have existed in previous years at other dams along the river (see Snyder, 1917, p. 42). The fish could not pass the Indian Reservation Dam because there was no water to flow through the fish ladder. Later in the year fish died along the river in great numbers because of the stagnant condition of what water there was. The stench from decaying fish is said to have become so offensive that, near Reno, men were employed to bury them. This lack of water is the result of dry seasons, construction of the Derby Dam (which is said to divert the water that naturally flowed down the Truckee River into the Carson River), and the general withdrawal of water for irrigation purposes.

Only one of the Nevada irrigation ditches taking water out of the Truckee River has a screen, according to persons familiar with the situation; and this screen was stated to be inadequate. None of the ditches that I examined had a screen. A heavy toll of trout is taken when the fry wander out into the smaller ditches and into the fields. The Derby Dam, the largest of the several dams in the river, has no adequate fish ladder by which the fish may ascend to their former spawning grounds.

Sewage from the several cities and refuse from saw mills and paper mills are emptied directly into the river, and are unquestionably detrimental to the fish life, especially at periods of low water. Some of this refuse is said to accumulate in pools and kill the spawn of the trout.

The critical factor in the welfare of the trout of Pyramid and Winnamucca lakes is the condition of the Truckee River which, for the reasons stated above, no longer permits of the fish ascending to their spawning grounds. Furthermore, the river is

no longer supplying the normal amount of water to the two lakes. Indeed, the level of these lakes goes down several feet each year. The development of other irrigation projects along the Truckee River now under consideration, including the construction of reservoirs, will no doubt further decrease the amount of water reaching Pyramid and Winnamucca lakes.

The White Pelican, then, is probably in no way responsible for the decrease which is so apparent in the number of trout. The causes of this decrease are man-made, and those which are believed to be the most salient have just been pointed out.

LITERATURE CITED

Bendire, C. E.
1882. Malheur Lake, Oregon. Ornithologist and Oologist, VII, June and July, 1882, pp. 129-131, 137-138.

Chapman, F. M.
1908. Camps and Cruises of an Ornithologist. D. Appleton and Co., New York, 1908, pp. 367-388, 9 photos.

Evermann, B. W.
1923. The Pelicans of Pyramid Lake. Overland Monthly, May, 1923, pp. 16-18, 45, 3 photos.

Grinnell, J.
1908. Birds of a Voyage on Salton Sea. Condor, X, September, 1908, pp. 185-191, 3 photos.

Hanford, F. S.
1903. The Summer Birds of Washoe Lake, Nevada. Condor, V, March, 1903, p. 50.

Leidy, J.
1878. A Louse of the Pelican. Proc. Acad. Nat. Sci. Phila., 1878, pp. 100-101.

Ridgway, R.
1877. Ornithology, *in* "Ornithology and Palaeontology," U. S. Geol. Expl. of the Fortieth Parallel, 4, part 3, pp. 627-635.

Russell, I. C.
1885. Geological History of Lake Lahontan. Monograph, U. S. Geol. Survey, XI, p. 63.

Skinner, M. P.
1917. The Birds of Molly Island, Yellowstone National Park. Condor, XIX, November, 1917, pp. 177-182, 2 photos.
1925. The Birds of the Yellowstone National Park. Bull. Roosevelt Wild Life Forest Exp. Station, vol. 3, no. 1, pp. 133-144, figs. 44-47.

Snyder, J. O.
1917. The Fishes of the Lahontan System of Nevada and Northeastern California. Bull. U. S. Bur. Fisheries, XXXV, Doc. no. 843, pp. 33-86, 1 pl., 1 map, 9 figs.

Berkeley, California, April 23, 1925.

THE FIRST BULLETIN OF THE COOPER ORNITHOLOGICAL CLUB

By JOSEPH GRINNELL

IT IS PROBABLY not known to many present-day members of the Cooper Ornithological Club that a "Bulletin" of the Club was issued several years before the *printed* volume I, number 1, of the "Bulletin of the Cooper Ornithological Club" appeared, in 1899. But there *was* such a bulletin, sent out in multigraphed, typewritten form, the first year of the Club's existence. In fact, it was sent out within two months after the organization meeting of June 22, 1893; for I have recently found an original copy of it in some early correspondence of mine, sent to me at Pasadena under postmark August 12, 1893. It was mailed me by Chester Barlow, the energetic Secretary of the Club not only at its inception but until the time of his untimely death in 1902.

This first, originally typewritten "Bulletin No. 1" is printed below, with exact wording, spelling and punctuation preserved. It shows a marvelously clear perception of the values in scientific organization, especially noteworthy when one considers that the coterie of four organizers varied in age from 16 to 18, certainly not more than 19. It will be observed that several of the expressed aspirations have proven prophetic. That "No. 1" was probably the only issue of the Bulletin in this form. For shortly afterward the Club's "proceedings" began to appear in print in H. R. Taylor's *Nidiologist* (see Condor, v, January, 1903, p. 6).

I deem it appropriate to publish in this connection a portrait of the Cooper Club's first president, Wilfred H. Osgood (see p. 180). This is, of course, as Doctor Osgood appears today, not as he presided over the Club's first meeting 32 years ago this June! Osgood and Barlow, in collaboration, are doubtless chiefly to be credited with the compilation of this document, now of so great historical interest.

THE COOPER
ORNITHOLOGICAL
CLUB

Bulletin No. I. San Jose, Calif. August, 1893

The sole object of this Bulletin is to state briefly and concisely the object of the organization of the Cooper Ornithological Club, which was organized June 22nd. We have felt for a long time that while individual research benefitted each particular member, there should be some means of meeting together at appointed times and studying some family or species of birds by each person giving his observations. This lead to the organization of the Club. We have organized to do *active* work and realize the importance of having the assistance and cooperation of ornithologists in all parts of the state.

We have chosen the name of the Cooper Ornithological Club for the reason which all California collectors will gladly accept. No one has done more to further the interests of Ornithology in this State than Dr. J. G. Cooper, and this small token of our appreciation is merited. It is the intention of the Club to hold meetings every two weeks and the interest manifested in those already held assures us of prosperity in the future.

Thus far we have had no particular family of birds under observation, but general articles and lectures on interesting topics have made up the programme. While it may seem that this would make a meeting more interesting, we have decided that we must have a system of study. First of all, we intend to give our attention to the common birds of this state where there is the least doubt as to identity, and to this end the notes from various sections are invaluable. At our next regular meeting August 15th, we shall discuss the Shrikes and Song Sparrows of California which constitute a broad field of study. Comparing the California and White-rumped Shrikes and Samuel's and

Heermanns Song Sparrows cannot fail to prove interesting and we hope to so clearly point out the difference in plumage that anyone who is present cannot fail hereafter to correctly identify any of the birds he may meet.

Now as to corresponding members. While we have a sufficient number of members in this locality to make our meetings lively and interesting, we wish to have the assistance of any and all energetic ornithologists in the state, and in return feel we can benefit them. Though a cordial invitation will be always extended to them to be present whenever an opportunity presents, we know it will be largely through correspondence that they will give the Club the results of their study and in return receive reports from other members. To this end we will issue a monthly bulletin, which will be edited by several active members residing in San Jose or vicinity. It will contain accounts of the two preceding meetings, and the outline of study for the one following. Each corresponding member will be expected to do his share of the work and make reports of his observations on any species or family of birds the club may have under consideration. These reports, coming from members in various sections of the state, will serve to show the distribution of the bird we are studying. The reports from our corresponding members will be read before the Club and comparisons made, and a full report of the meeting will appear in the Bulletin.

It will be plainly seen that the editing of the Bulletin will incur considerable expense and to cover this an entrance fee will be charged corresponding members of 50 cents, which when remitted to the Treasurer at College Park will entitle you to membership in the Club. Please give the matter careful consideration.

In addition to having a course of study to be pursued, recreative articles will be prepared and read before the Club. The officers for the quarter beginning June 22nd are as follows: President, Wilfred H. Osgood; Vice-President, Harry R. Painton; Treasurer, Fred A. Schneider and Secretary, C. Barlow.

All who receive this Bulletin and wish to join us will oblige by notifying us promptly, and should you join, we shall be pleased to have your observations on the Song Sparrows and Shrikes accompany your letter. Give your experience whether it is extensive or not, together with nesting habits curious traits etc. and do not be afraid of making it lengthy. All observations should be in the Secretary's hands by the 15th and as much earlier as possible. The Bulletins hereafter will contain four or more pages of interesting material.

In view of the fact that a number of ornithological societies have been organized in the East and are now being very successfully conducted, we hope the collectors of California will lend their assistance to something which must prove successful if properly supported.

Finally, we invite anyone who can to be present at our meeting on the evening of August 15th, which will be held at the residence of the Secretary, 228 East San Carlos Street San Jose Cal.

Berkeley, California, May 20, 1925.

A REVISIONARY STUDY OF THE WESTERN GULL

By DONALD R. DICKEY and A. J. VAN ROSSEM

THE MANTLE tone and, more particularly, the color of the feet and legs of the Western Gull have long been subjects of interest to western bird students, but the published results of such studies have lacked that certain agreement which ordinarily follows independent and intensive field observation. Authorities have differed; some have stated that the feet of these birds were yellow; others have insisted that they were flesh colored. Curiously enough, these seemingly irreconcilable statements were both correct.

It has been sufficiently established that the feet and legs of the birds of this species which breed on the islands lying off the west coast of the United States are flesh colored. This statement is based not alone on the field experience of the writers, who

have observed many thousands of these birds in life, but also upon the authority of Major Allan Brooks[1] and of Mr. William L. Dawson[2], each of whom has studied the matter and correctly recorded the facts. In a word, *Larus occidentalis,* as it breeds on the Pacific coast of California, Oregon, and Washington, varies in mantle color from light gray, in the north, to dark gray, in the south, but in the color of its feet and legs it remains constant. Throughout this nesting range it is a flesh-footed bird.

In April, 1925, it was the privilege of the junior writer to accompany Mr. Griffing Bancroft, of San Diego, on a short trip into the northern half of the Gulf of California. Western Gulls were breeding commonly on many of the islands at which the party touched. The mantle color of these birds seemed normal to one chiefly familiar with the nesting birds of the California coast, but something seemed "wrong" with them. Suddenly the cause of their unfamiliar appearance was clear. They had bright yellow feet and legs.

This trip extended southward in the Gulf only as far as San Pedro Martir Island, but the color of the feet of birds from as far south as San José Island has long been known as "lemon yellow" from the field data of Mr. W. W. Brown, Jr., who secured the type of *Larus occidentalis livens* at that island in 1912.[3] It is therefore assured that the Western Gull inhabiting the Gulf of California, from its northern islands south at least to San José Island, is a yellow-footed bird.

To summarize the situation: There is, first, a light-mantled, flesh-footed race, breeding on the off-shore islands of northern California, Oregon, and Washington; second, a dark-mantled, flesh-footed race, breeding on the islands of the Santa Barbara group of southern California, south at least to Los Coronados Islands, on the Pacific Coast of Lower California; and, third, an equally dark-mantled, but yellow-footed race, breeding on the islands of the Gulf of California. The first and third of these forms have already been named. We propose the following name for the southern California race.

***Larus occidentalis wymani*[4], subsp. nov.**
Southern Western Gull

Type: Male adult, no. 15,250, collection of Donald R. Dickey; Santa Catalina Island, California; May 22, 1925; collected by A. J. van Rossem; original number 8329.

Description of type: Mantle and dorsal surface of wings deep neutral gray; four outer primaries chiefly black; next inner primary deep neutral gray, with black subterminal area approximately one and one-fourth inches in length; next inner primary similar, but with black subterminal area reduced to one-half inch in length; rest of plumage, including tips of primaries, secondaries, and tertiaries, edge and lining of wing, and a subterminal mirror one and one-fourth inches in length on outer primary, pure white. Tarsi and feet flesh color, slightly bluish on tibia, the rosy flesh tone being most pronounced on webs; eyelids orange-yellow, shot with vermilion in posterior corner; bill wax-yellow, with orange-vermilion spot at angle of lower mandible; edge of gape flesh color; iris olive-buff[5].

Subspecific characters: Similar in mantle color to *Larus occidentalis livens,* but feet flesh colored, and eyelids more orange, at least in the breeding season. Color of mantle darker than in *Larus occidentalis occidentalis*—deep neutral gray instead of light neutral gray—and with the four outer primaries extensively black, without gray wedges on inner webs.

---

[1] Condor, XXIV, May, 1922, p. 94.

[2] Birds of California, 1923, p. 1380.

[3] Proc. Biol. Soc. Wash., XXXII, 1919, p. 11.

[4] So named in recognition of the painstaking years spent by Mr. L. E. Wyman in the study of Western Gulls, and in appreciation of an ever-pleasant friendship.

[5] Ridgway's Color Standards and Color Nomenclature, 1912.

Range: Breeds on the islands along the coast of southern California, south at least to Los Coronados Islands, Lower California, and probably north to the Farallon Islands.

Remarks: According to Dr. Dwight (loc. cit., p. 12), the southern dark-mantled bird of the Pacific Coast, here characterized as *Larus occidentalis wymani,* breeds north to the Farallon Islands in fairly typical form. Unfortunately, the status of the Western Gulls of the Pacific Coast of Lower California, south of Los Coronados Islands, is unknown. Without this information, the question of intergradation between the yellow-footed and the flesh-footed types of this species cannot be finally determined. No intergradation has been shown to date. Under the circumstances, it is of course premature to hazard a prognosis, but it seems not unlikely to the authors that the yellow-footed bird of the Gulf will be recognized eventually as specifically distinct from the flesh-footed birds of the Pacific Coast proper.

The colors, in life, of the soft parts of an example of *Larus occidentalis livens* (no. 15,119, collection of Donald R. Dickey), taken by the junior writer on one of the Islas Encantadas group, in the Gulf of California, April 14, 1925, are as follows: Iris yellowish white. Bill (except for subterminal orange-vermilion spot on lower mandible), tarsi, feet (including webs), and eyelids, all of an even shade of bright wax-yellow. These data were checked by passing the feet and legs of a freshly taken specimen across the bill and eyelids. Under this test, no difference was discernible in the color of these parts.

A brief synopsis of the known breeding ranges of the three forms follows:

Larus occidentalis occidentalis, Northern Western Gull: Coastal islands of Washington, from Willoughby Rock and Carroll Islet (Dawson, loc. cit., p. 1379), south to Trinidad, Humboldt County, California (specimen no. 6,412, Museum of Vertebrate Zoology, University of California).

Larus occidentalis wymani, Southern Western Gull: The islands along the coast of southern California, south at least to Los Coronados Islands, Lower California, and probably north to the Farallon Islands (Dwight, loc. cit., p. 12).

Larus occidentalis livens, Yellow-footed Western Gull: The Gulf of California, from Consag Rock and George Island south at least to San José Island.

Pasadena, California, May 29, 1925.

A REPORT ON THE BIRDS OF NORTHWESTERN ALASKA AND REGIONS ADJACENT TO BERING STRAIT. PART IV

WITH FOUR PHOTOS

By ALFRED M. BAILEY

ARCTIC TERN. *Sterna paradisaea.*

These terns are exceedingly numerous along the northern coast of Alaska and also have a very wide breeding range, which extends from southeastern Alaska, where there is a large colony of them nesting on the moraine in front of Norris and Taku glaciers, to the islands east of Point Barrow in Arctic Alaska. They were common throughout the summer at Nome; several pairs were seen over the tundra, June 1. Several were noted daily at St. Lawrence Island the latter part of June and the early part of July, and at St. Michael where they fed about the quiet waters of the bay. We also found a small nesting colony at Teller, on the bar near the village.

At Cape Blossom on August 1 we saw several pairs of adults and one young bird already on the wing, while another colony was found near Corwin coal mine where about fifty pairs bred on a small spit. A few were noted at Point Barrow, Cape Halkett and Demarcation Point, on the 6th, 10th, and 15th of August, respectively; and the birds proved to be fairly abundant in the vicinity of Wainwright during the latter part of August. Two breeding colonies are in close proximity to the village, one on the great bar at the mouth of Wainwright Inlet and the other at the mouth of a river some five miles up the coast from Wainwright. Young birds, almost fully fledged, but not able to fly, were found August 3; and a migration of these terns occurred on September 7 while we were at Icy Cape. On this day many species of birds seemed to be moving southward; kittiwakes, Sabine Gulls, loons and terns. Many large flocks were composed almost entirely of young terns, although there was almost invariably an adult bird accompanying them. They often hovered overhead,

Fig. 41. NESTING GROUNDS OF THE OLD-SQUAW DUCK: LOPP LAGOON, NEAR CAPE PRINCE OF WALES, ALASKA.

the whole flock poising with forked tails spread, complaining in the usual querulous, tern-like fashion. Many flocks of young stopped to rest on the sand beaches, a prolonged flight, doubtless, being too much for their untried wings. Between Icy Cape and Wainwright, the beach line is composed almost entirely of sand banks thrown up by the ocean and thus forming broad lagoons back of them many miles in length. Wherever the currents have kept open channels to the lagoons one is apt to find small islands, and there the terns nest by the thousands, doubtless because of the protection provided them from the white foxes.

Hendee records the Arctic Tern as a late arrival at Wainwright, the first being noted there on June 17. The birds evidently begin housekeeping immediately upon arriving at their nesting grounds, for fresh eggs were taken by June 27. These terns are very common along the entire northwest Arctic coast during the summer, and the natives take great numbers of the eggs each season. I first observed them at Wales on

May 28, and a few were seen during the next two weeks, after which time they became abundant. Several birds of the preceding year were taken over the pack ice on June 11, their white foreheads causing me to mistake them for Aleutian Terns, until I had collected specimens. Arctic Terns nest in great abundance along Lopp Lagoon, practically all the islands away from the village having their colonies. Fresh eggs were taken between July 1 and 8.

BLACK-FOOTED ALBATROSS. *Diomedea nigripes.*

This Albatross was seen only in the northern Pacific, a half-dozen birds following the Victoria when twelve hours out from Flattery June 10. They continued with the ship until the 14th, after which date none was observed. Charles Brower told

Fig. 42. NEST OF OLD-SQUAW AS LEFT COVERED WITH DOWN BY THE FEMALE.

us that he found an albatross of this species which had floated ashore at Point Hope many years ago, but added that as the current was to the northward at that time of the year, it is possible that it was carried northward from Bering Sea. This is the only Arctic record of which I know.

RODGERS FULMAR. *Fulmarus rodgersi.*

No specimen of fulmar was taken during the cruise of 1921 and none was noted north of Unimak Pass, in spite of the fact of their recorded abundance around the islands of Bering Sea, and that we included these islands in the course of our itinerary. It is presumed that the light-colored birds observed when within 250 miles of Unimak Pass on June 14, and in considerable abundance in the Pass the next day, were of this species, as it is given as the common form of the region.

In the spring of 1922, Hendee secured four specimens at Wainwright, two of which were caught in baited fox traps, on June 14. The other two were taken on July 27 and August 5. They occur regularly each summer, offshore, although only as stragglers from their breeding ground. I observed the first of this species in Bering

Strait on May 27 and collected one pair. They rarely approached the shore, preferring to work in the open strait among the drifting ice. During the first week in June I saw them daily while hunting, and when we were skinning walrus they remained close at hand. The specimens which I collected were all belly picked, although the natives claimed that these birds do not breed upon the Diomedes. The Eskimos call the fulmars "walrus birds", because a few are usually seen around a herd of these large mammals.

When off the Shumagin Islands on the S. S. *Cordova* on August 22, I saw thousands of dark-colored fulmars. They followed the ship in company with Glaucous-winged Gulls and Black-footed Albatrosses. Only one light-colored fulmar was noted among the great numbers of dark ones. As there is doubt as to the validity of two forms from Alaskan waters, I am including all fulmars as *rodgersi*.

SLENDER-BILLED SHEARWATER. ***Puffinus tenuirostris.***

Hendee found a specimen of this species dead upon the beach at Wainwright, September 4, 1921. It was slightly mutilated from birds tearing the breast, but otherwise in good condition. It is doubtful if this carcass could have floated from any great distance, for it would, in all probability, have been destroyed by gulls. This would tend to show that the Slender-billed Shearwater ranges quite far into the Arctic Ocean, since Grinnell took one at Kotzebue.

None of this species was observed at Wainwright during the spring months. At Wales I saw but two birds, on June 22, one of which was collected. The natives told me they were sometimes seen in abundance offshore.

LEACH PETREL. ***Oceanodroma leucorhoa leucorhoa.***

We saw no petrels in Bering Sea or northward. The only specimen which I secured was one which came aboard ship on August 22 while off Unimak Island. Thousands of petrels were noted as we sailed along the Shumagin Islands and a few came aboard, but they were given their liberty before I had an opportunity of examining them.

PELAGIC CORMORANT. ***Phalacrocorax pelagicus pelagicus.***

Cormorants were noted in considerable abundance in Bering Sea during the summer of 1921, the first records being made on June 16, when we were abreast of the Pribilofs. A few were observed on June 27 at King Island, and they were fairly abundant at St. Lawrence Island, where they were nesting along the cliffs below Sivunga the first week in July. Many were seen daily at Providence Bay, the natives telling me that they nested along the steep walls at the entrance to the bay. A few were recorded at Whalen, near East Cape, July 11, and others at St. Michael July 20 to 23.

One of the most unusual records we made in the Arctic was the finding of a female of this species on the tundra, about fifty miles up Wainwright Inlet, on January 24, 1921. There were no bullet marks on the bird and it had evidently died of hunger or weakness, as it was extremely emaciated. The condition of the skin about the head and neck was such as to show that the bird had not been frozen for any length of time, for the skins tend to dry out after a few weeks, especially when exposed to the air. The neck was slightly gnawed by lemmings; but had the bird been lying on the tundra any length of time, white foxes must have found it.

The first cormorant I noted at Cape Prince of Wales was on April 26. By the end of the month they were common, usually in the leads, or resting on the ice floes; on June 3 I found them very abundant on the Diomedes. At the time of my next visit to the islands, June 25, the cormorants were perching upon their nesting ledges, but no eggs had been laid. July is the nesting month for the island birds.

RED-FACED CORMORANT. *Phalacrocorax urile.*

The only specimens secured of this species were taken by Hendee at Unalaska on September 24, 1922. They were birds of the year. Hendee reports that cormorants were fairly common in that vicinity.

RED-BREASTED MERGANSER. *Mergus serrator.*

This species was seen but once, a single bird at St. Michael on July 21. In 1924 Nagozruk sent me a female taken at Cape Prince of Wales, June 30.

MALLARD. *Anas platyrhynchos.*

Mallards were met with only at Unalaska where Hendee found them common the latter part of September and the first part of October. There is a large valley

Fig. 43. SAME NEST AS SHOWN IN FIGURE 42, WITH EGGS UNCOVERED.

running to Mt. Makushin, containing many small meandering streams which seem to be the favorite haunts of this species.

EUROPEAN WIDGEON. *Mareca penelope.*

Hendee collected two specimens on King Island on August 5, 1922. The Coast Guard Cutter *Bear* was returning a load of islanders from Nome, and, as their small boat landed, a pair of ducks was found asleep on a rock. A gun was passed forward to an eskimo in the bow who shot both birds.

GREEN-WINGED TEAL. *Nettion carolinense.*

Hendee found these birds common at Unalaska the latter part of September, especially in the river valley leading from Mt. Makushin. We did not meet them farther north.

BAIKAL TEAL. *Nettion formosum.*

I secured a male of this species at Wainwright on September 2, 1921. I was stalking a small flock of Steller Eiders on a long sand-spit running into the Inlet, when this little teal came winging close in. It was the only one noted on the trip and is the basis of the first record of the species for North America. (See Condor, XXVI, 1924, p. 195.)

PINTAILS. *Dafila acuta acuta; Dafila acuta tzitzihoa.*

Pintails are the most abundant of fresh-water ducks in northern Alaska, and they have a wide breeding range, extending from the Yukon to Barrow and eastward. A female was seen at Nome, July 21, 1921, which was evidently nesting on one of the tundra ponds, and over one hundred birds were seen about the lagoon at Point Hope on August 2. At Corwin coal mine, on August 3, we surprised a female with her brood of five half-grown young on a little pond scarcely a dozen yards across. I saw several at Humphrey Point on August 16, and they were common at Wainwright until August 29, when the last were observed.

They were not abundant at Wainwright the following spring. Hendee took two birds on June 17 and 24, and on July 19 secured five downy young with the female. They are rather widespread in distribution, few breeding in any one locality. They were rare at Wales. I collected a male on a small pond on May 31, 1922, and observed a few on June 5. They were quite common, however, along Mint River, which empties into Lopp Lagoon about twenty miles from Wales. Plenty of food and fresh water is a requisite for pintails, and this fine little Arctic river proved a good breeding ground for them. In the field the pintails which we secured appeared different from those which I had collected in the States, although I was not aware that there were two forms. A few were saved for identification, several birds from Wainwright and a male from Wales, and all proved to be the Old World form.

In 1924 we received a pintail from Wales collected on Lopp Lagoon, and a set of six eggs taken June 30, 1924. The nest was typical, being of grass, lined with down. A set of eggs was also sent in by Mr. Charles Brower from Point Barrow, with the brooding bird. All our pintails were sent to Dr. H. C. Oberholser for identification and he has reported on them as follows: "Those from the Seward Peninsula and Wainwright are *Dafila acuta acuta,* but the one from Point Barrow seems to be *Dafila acuta tzitzihoa.* It looks as though *D. a. acuta* were confined to the Seward Peninsula and the Alaskan coast north to Wainwright, so far as North America is concerned. The Point Barrow bird is a little intermediate, however, and more from that locality might look like *acuta*". Mr. Outram Bangs also found that many of our golden plover from Wainwright and Barrow were more or less intermediates, showing that Wainwright is the meeting ground of some of the western and eastern forms. Mr. Oberholser says further that "*Dafila acuta acuta* differs from the North American bird *D. a. tzitzihoa* in being smaller (chiefly wing and bill) and in the male having the green portion of the speculum averaging more bronzy (less purply green)."

The set of six eggs taken at Wales on June 30, 1924, on Egg Island (Melakatavik) in Lopp Lagoon, appears to furnish the first breeding record for *Dafila acuta acuta* in North America. In regard to the pintails at Barrow, Brower states that "they nest on the higher knolls near tundra ponds, never down in the swampy marshes."

Of the six pintails which we have from Arctic Alaska, all have thus been identified by Dr. Oberholser as typical old-world birds, except the one from Point Barrow. It would seem, then, that the greater percentage of pintails from northwestern Alaska must be *Dafila acuta acuta.* Considerable field work will have to be done, however,

before the range of the two forms in Alaska is established, for but few specimens have been saved for identification and there is little data to go on. It will be of interest to know if the pintails taken on the Bering Sea islands and the Alaskan coast immediately south of Wales are also *Dafila acuta acuta*. Our records of the Old World form (see Condor, XXVI, 1924, p. 195) seem to be the first for North America.

SCAUP DUCK. *Nyroca marila nearctica.*

This species is given by Nelson as being rather abundant along the Alaskan shores, but we failed to see a single bird during the entire summer, the first specimen seen being taken in the fall, when a female was collected at Wainwright on October 13. This is doubtless a northern record for the species in Alaska. The summer's cruise was disappointing in that we did not see great numbers of water birds of any species, and it is possible that 1921 may have been a poor season. The trader at Wainwright told us that few ducks, or their eggs, were taken the past season in comparison with former years. None of this species was observed in the spring of 1922 at Wainwright.

Fig. 44. NEST OF OLD-SQUAW; CLOSE VIEW, SHOWING DETAILS OF STRUCTURE.

At Cape Prince of Wales a native brought in a female on June 6, the only one I recorded from that point.

OLD-SQUAW. *Clangula hyemalis.*

This species was noted the most abundantly of any of the ducks, being very numerous at many points. Judging from the observations of others as well as our own, they are common breeders throughout their southern range. It is useless to give dates of observations, for the birds were seen almost daily from the time of our arrival at Nome, throughout our cruise to Siberia and along the Arctic coast of Alaska, as far eastward as Demarcation Point. They were nesting on St. Lawrence Island where I secured a set of eggs (five) on July 9, and we saw the birds in considerable numbers at Providence Bay and East Cape, Siberia. Others were recorded at Cape Blossom, Corwin Coal Mine, Barrow, Cape Halkett, and Point Humphrey. I saw an adult with a flock of half-grown young when we were in the ice at Demarcation Point. The mother bird took to wing, while the youngsters dove, all coming

up as widely separated from each other as they possibly could; then rising, they pattered away over the water exactly as murres or Tufted Puffins do.

This was a very common bird at Wainwright in August, big flocks of them congregating on a long spit which extends into the Inlet. The most of them were molting at the time and unable to fly. Many of the birds started their southward migration about the 7th of September, flocks of them passing Icy Cape on that date; but in spite of this large movement southward, the birds continued plentiful all through September, doubtless because of the numbers of birds coming from the eastward. On October 1, we were offshore in a whale boat and saw some very large flocks of Old-squaws, hundreds of them rising from the water at a time, with that swift, swirling flight so characteristic of the species; but they were too wild to allow our close approach. A few birds were seen October 12, and the last recorded were at the mouth of the Inlet, a bunch of ten on October 19. At this time, ice was nearly a foot thick on the tundra ponds, and slush ice had frozen a hundred yards out from shore several times, only to be broken off by a change of wind. They reappeared the following spring on May 15, when a few birds were seen, and they were abundant by the first of June. They began nesting late in June, a nest with five eggs being taken June 27, and another with six eggs on July 1.

The first arrivals at Wales were seen on April 28, and I collected a male on May 8. From that date they were common, feeding upon snails which they obtained by diving along the edge of the shore ice. They began nesting along the shore of Lopp Lagoon by July 1, hundreds of them choosing the little islets as their nesting sites. They dig pits in the sand which they usually line with grass, although I found many nests without such a lining. As the number of eggs increases, the bird plucks down from her breast, under which the eggs are concealed when she leaves the nest—unless flushed too quickly (see accompany photographs). The Old-squaws were in colonies in company with Arctic Terns, and on one little island I found at least one hundred nesting pits under way. The ducks were just beginning to lay by July 4, there being only five complete sets out of over forty nests which I examined.

The Old-squaw Ducks were in every conceivable stage of plumage during the summer, ranging from the full breeding plumage to that of winter, with all the intermediate phases. I found many birds in this worn, nondescript plumage to be breeding birds. Hendee took a male on August 15, with new primaries just showing, and other birds were seen just able to fly. At this time of the year the birds band together, often choosing an exposed sand spit as a safe place to sun themselves.

The eskimos name most birds according to their calls. At Wainwright the natives interpret the note of the old-squaw as "ah-a-luk", while at Wales it is called "ah-a-nuk". I have heard fishermen in southeastern Alaska call them "Sou' sou' Sally" ducks.

Denver, Colorado, January 12, 1925.

FROM FIELD AND STUDY

Field Notes on the Raven.—While on the north end of Catalina Island April 6 to 9, 1925, I was enabled to observe at leisure some of the breeding antics of the Western Raven (*Corvus corax sinuatus*). A large flock that was gathered there gave daily aerial and vocal exhibitions. The most striking effect was produced by the vocal abilities of these usually croaking, growling dignitaries. When a flock of some numbers would be playing in the air in a general sort of melee, a high pitched clamorous cawing, very crow-like, was the usual thing. Lower voices were heard, in the quality and burring utterance of the nutcracker. Single pairs gave rapid runs (on an upward scale) that had a ringing quality, of wooden nature, like castanets, and were musical enough to remind one of the xylophone.

Another peculiar sound was made in a number of instances by a bird when completing the "roll". Upon reaching upright position such birds made a sharp "pugh", very like a cork drawn from a bottle. My first impression was that it was the result of a certain wing-flash in gaining position; but later, birds in ordinary flight gave the same note, so I concluded it was vocal. Another puzzle was the "whiff, whiff" of steady-flying birds. It was so strong and distinct a sound that a single bird flying down the valley awakened me on two different mornings by this sound when still at a considerable distance. Mr. M. W. deLaubenfels expressed himself at the time as thinking this a volitional effect, as numbers of times a pair of birds would go overhead and only one be giving the sound. Could it be a sexual characteristic?

Ravens formerly did great damage to the sheepmen on this island by picking out the eyes of new-born lambs. The lambing fields were always guarded by armed men. Today, however, there are very few sheep on the island. One of the ranchers told me that the ravens do not do the same damage to the young kids of the goats, of which there are thousands on the island, for the reason that the nannies are more agile than the ewes and keep the birds away. Mr. Arthur Barr found a circle of ravens around an American Eagle feeding on the carcass of a goat he had recently killed. They gave the eagle some bother but made no united attack. This same observer and his father called my attention to the probability of ravens eating cactus apples. They found the remains, and also whole apples freshly punctured, upon conspicuous elevations such as a raven might use. It is almost certain that they do, for the ripened fruit can be found fallen in the midst of nearly every cactus thicket, each one with a puncture such as the bill of the raven might inflict.—ROLAND CASE ROSS, *Dept. of Nature Study, Los Angeles City Schools, May 10, 1925.*

Segregation of the Sexes in the Sage-hen.—Sage-hens (*Centrocercus urophasianus*) are still numerous in northwestern Colorado. They breed in all favorable places in Routt and Moffat counties and then assemble in large flocks during the winter months. I have been told that their center of abundance during the winter is in the general vicinity of Craig and Sunbeam, where they congregate on the great sage flats. During this time they are often entirely absent in places where they were common in the summer.

I worked from the Cary Ranch (about on the border of the two above mentioned counties) in February, 1925, and noted the tendency of the Sage-hens to gather in flocks according to their sex, as do the Willow Ptarmigan in Alaska. As with the ptarmigan, it was not unusual to find a few males in a large flock of females, and vice versa, but for the most part the flocks were of but one sex. The birds wintering immediately about the Cary Ranch, which is in the valley of the Bear River, were almost entirely females.

The Bear has a rather narrow basin with the usual growths of cottonwood and willow, while the hills sloping abruptly from the valley floor are clothed with sage. The snow was about two feet deep on the level, which made work a trifle difficult; but in the week afield, I had no difficulty in seeing Sage-hens daily. There were no large flocks along that part of the Bear, as the majority had worked to the northward. Of the hundred or so noted but a few were males. On the Elk River, which empties into the Bear nearly on the Routt and Moffat county line, I found the flocks composed almost entirely of males. The Fortification Flats, across the divide to the northward

of the Elk, were spoken of by the ranchers as a famous wintering ground of the "chickens". These birds find a broad valley with a southern exposure to their liking and there spend the winter as long as food conditions are favorable.

Owing to the inaccessibility of the region in discussion, and to the closed season in Colorado, I am told the Sage-hens have been holding their own. The farmers kill a few in the fall, but the birds are pretty well protected for the most part. A short open season for the Sage-hens in Colorado is now under discussion, but my experience is too limited with this species to venture an opinion on the advisability except that a continued closed season would surely do no harm. I should be sorry to see this last stronghold of the Sage-hen in Colorado invaded by gunners.—ALFRED M. BAILEY, *Colorado Museum of Natural History, Denver, Colorado, April 17, 1925.*

An Early Account of the Birds of Lake Merritt, Oakland.—I am prompted by Mr. A. S. Kibbe's interesting statistics on the occurrence of water birds at Lake Merritt in the March issue of THE CONDOR (p. 55) to give an account of an early paper bearing on the same subject, which has but just come to my attention. Reference was made in the November, 1924, issue of THE CONDOR, in the editorial department (p. 234), to the thrill that comes to a bibliographer in discovering a new title. This is quite comparable to the thrill that comes in discovering a new species—or, nowadays, a new subspecies! In the present connection I have only recently, for the first time, seen the article of the following title; and I have experienced that thrill.

1876. Nelson, E. W. Birds Observed in the Vicinity of Oakland, Cal., December 23, 1872. (The Scientific Monthly [Toledo, Ohio], I, February, 1876, pp. 232-234.

Even though Coues, in his bibliography of 1878, gave the above title, I had not included it in either of my installments of California bibliography—for the reason that I had never, myself, had access to this particular "Scientific Monthly", which series was evidently an ephemeral one. In other words, the above title is brand new to my personally gathered "collection" of California titles.

The general interest in this article of Dr. Nelson's, setting forth field observations of 53 years ago next December, is that it relates to a locality which is now almost in the heart of a big city. Incidentally, be it noted, Dr. Nelson was at that time a youth of but a few months passed 17 years of age. But he was an observant youth; and he put down in this article, when preparing it for publication four years later, much of just the sort of information we would like to have in comparison with avian conditions in the vicinity of Oakland today.

The article in question is a narrative account occupying most of three printed pages. Birds are designated usually by both their common and scientific names, the latter, some of them, rather curious in comparison with those in current use today; for example: "*L*[*arus*]. *delawarensis* var. *Californicus*", for the California Gull—as if the California Gull were a subspecies of the Ring-billed. The names used were of course not novel with Nelson, but were such as Henshaw, Ridgway, Coues and other active ornithologists of the day were employing.

A total of 28 species of birds are thus formally mentioned; and just one day of observation is covered, December 23, as indicated in the title. Young Nelson and a friend, "Mr. W. Wentworth", spent "the principal portion of the day . . . on an arm of San Francisco Bay and the adjacent marshes, which are extended along south of Oakland. . . . The only timber to be seen was the belt of oaks extending along near the bay, and in the midst of which, the town [Oakland] is situated."

"On the edge of the town we found a small lake made by building a dam across the outlet of an arm of the bay, which extended back a mile or more from the main body of water. This lake [Lake Merritt, of course] appeared to be the home of numerous water fowl, notwithstanding there were several residences on its banks and a much frequented [true today!] road extending along one side." . . . "On the shore near by a flock of Semi-palmated [=Western] Sandpipers . . . ran nimbly about, and on the opposite shore a White Heron . . . stalked sedately along."

White Pelicans and Eared and Pied-billed grebes were also seen, and their appearance and behavior are described. Furthermore, "in the centre of the lake a large flock of ducks were splashing about, seeming to well understand that they were under the protection of the law." Thus, reference is made to the fact that Lake Merritt was then already a protected resting ground for ducks, having been set apart, in 1869, as the first California State Game Refuge.

Young Nelson and his companion then pushed off from shore in their boat and as they did so "immense numbers of ducks arose from the water, in every direction, and after wheeling about a few times the most of them started off. When they circled by we recognized several species." These were, in modern parlance, Lesser Scaup Duck, Baldpate, Buffle-head, Gadwall and Mallard. In comparison with conditions today, the presence of the Gadwall and the absence of the Pintail are to be noted. In the latter respect it is not unfair, I hope, to suggest the possibility that young Nelson's immature experience prevented him from recognizing all of the species of ducks really present.

It is evident from the text that Nelson and his companion then proceeded in their boat down the outlet slough from Lake Merritt toward Oakland Harbor. They encountered some Willets, a pair of which were shot; and, "pushing the boat up into a narrow strip of grass bordering the marsh", they came upon "a large Rail" [California Clapper Rail, a race not then described] the behavior of which is recorded with admirable attention to detail. Among other birds encountered were "*Sterna Caspia*", "a fine specimen" of which was shot, and several Brown Pelicans, which "commenced fishing near the ruins of an old wharf, which was built out in the bay."

The article closes appropriately, with evident regard to the prevailing formalities of composition, as follows: "The sun sinking behind hills in the direction of the 'Golden Gate' warned us that it was time to turn our boat homeward, and we reluctantly bade farewell to one of the pleasantest days we had enjoyed for some time."—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, April 10, 1925.*

Remarkable Work of the Pileated Woodpecker.—On the talus slope 100 feet above the "Indian Cave", and growing among the great boulders, stands a group of four sickly-looking Douglas spruces. Three of these trees are about 125 feet high; one is a smaller tree, about 75 feet high. The larger trees average three feet in diameter, four feet above the ground; the smaller tree is fifteen inches in diameter. Now the interesting thing about these trees is the work that has been done upon them by a Western Pileated Woodpecker (*Phloeotomus pileatus picinus*). Each tree has been partly stripped of bark. Two have been worked upon from the top to within a few

Fig. 45. CHIPS OF BARK AT THE BASE OF ONE OF THE TREES WHERE THE PILEATED WOODPECKER WORKED.

feet of the ground, and the remaining two have been worked upon to within twenty feet of the ground. The outer and roughly fissured bark has been systematically chiseled away, giving the impression of trees that had been carefully surfaced by an expert working with an adze. For several feet near the top of two trees the bark has been stripped to the cambium layer, but by far the greater portion of the work was the chiseling away of the rough outer layer of bark to a depth of three inches, leaving a comparatively smooth, golden-brown surface. Of course the layer removed varies in thickness, growing thinner as the tree tapers toward the summit.

From a little distance these freshly carved trees have the appearance of the yellow pine, rather than the dark-barked Douglas spruce.

Underneath is a great litter of chips and strips of bark; a cord surely, most likely more. Many of the strips of bark are two feet long, while the great mass of chips average eight inches. There is nothing rotten or soft about this bark, and when we tested its strength we found that it held tenaciously and required the full strength of strong fingers to pry off one of the ridges of bark where leverage could most readily be applied. The Woodpecker, however, working with his strong chisel-like bill is able to apply the power of a wedge as well as leverage.

Close examination of the bark where the woodpecker had been working disclosed numerous pits, or pockets, which had encased the objects of the woodpecker's pursuit. By ripping off layers of bark just below where the woodpecker had been working we uncovered several occupied pits. The occupants were soft, white, grub-like objects which we took to be the larvae of some sort of ant. All this work we believe to have been accomplished by a single Pileated Woodpecker, and in the short space of a few months.—ENID REEVE MICHAEL, *Yosemite, California, March 9, 1925.*

Clark Nutcracker in Alameda County, California.—I have recently had an opportunity of handling a Clark Nutcracker (*Nucifraga columbiana*) that was killed near here and brought to me to be skinned. This is a most unusual bird for this region. I have no memory of another having been taken during my forty-five years' residence here.

The bird was a female, apparently immature, and it was killed in Cull's Canyon, near Hayward, February 16, 1923. It was said to have been feeding on a dead calf on the hillside, but no meat was found in the stomach. I have been told several times of birds, probably this species, seen near here and supposed to be "some kind of woodpecker or jay".—W. OTTO EMERSON, *Hayward, California, April 20, 1925.*

Early Nesting of the Fork-tailed Petrel.—Exactly fifty-three days earlier in the season than my California breeding record date of May 14, 1916, for the Fork-tailed Petrel (*Oceanodroma furcata*), and on the same island, I discovered the Fork-tailed Petrel breeding on March 22, 1925, on Whaler Island off Crescent City, California. Cast bump-pe-ty, bump-pe-ty, bump, upon a surface of round boulders by a large back-swell, my boat was soon left high and dry by the fast ebbing tide, upon the shore of Whaler Island. I landed on the north end and immediately made for the rising easterly flat, which is covered with heavy, black loam, matted down with long, coarse grass. Petrel aroma was evident and I immediately began breaking through the surface as I trod the honeycombed home of the Kaeding Petrel. Many holes were dug up but revealed no birds. A low cackle was heard and its exact source soon located. One foot of tunnel laid open revealed two Kaeding Petrels, huddled together at the pear-shaped end of the burrow. In scattered spots several more "sets" of two birds were found, but in no instance were eggs located. These birds did not eject a squirt of oil, as petrels do in advanced nesting.

Next, I searched on the seaward side among the boulders, where Fork-tailed Petrels were nesting on May 14, 1916, but found no evidence of any nesting birds at this spot. My attention was then turned towards the north side of the island, where a rocky, low cliff is bordered below by a boulder-covered beach that is covered at times of high seas by the breakers. This was investigated, with the Pigeon Guillemot in mind, but March 22 was apparently too early. I next turned to a broken-up ledge, scantily carpeted with dirt and grass, ten feet above my head. I scrambled up the steep slope to this ledge and with great effort dislodged a heavy rock, three feet in

thickness. This was to be the end of my search on this trip, as night was fast approaching and a rising north wind had put huge breakers between myself and the mainland. Exposed on a cushion of dry grass, lay a pink-colored egg, so fresh that the shell was transparent. Two inches away, crouched, with head hidden in a crevice, was a beautiful Fork-tailed Petrel. This proved to be the male bird, engaged in incubating, as shown by the warmth of the egg.—C. I. CLAY, *Eureka, California, April 5, 1925.*

The House Finch in the Oklahoma Panhandle.—Extension of the breeding range of any species of bird is frequently an event of much interest to ornithologists residing at a considerable distance from the region where the change has taken place. It is for this reason that I take pleasure in reporting the fact that during the past three years House Finches (*Carpodacus mexicanus frontalis*) have become year-around residents in the northwest corner of Cimarron County, which is the extreme western county of the Oklahoma panhandle. This is an extension of their former range, in a southeasterly direction, a distance of approximately forty miles. Prior to 1922 the southeastern limits of their breeding range had been in the neighborhood of West Carrizo Creek, in Las Animas County, Colorado. The first record of the species in Cimarron County was in the summer of 1919, when several non-breeding birds were observed about six miles northwest of the inland town of Kenton.

These finches, a majority of which were males, and which numbered less than a dozen all told, were found in a cottonwood grove on North Carrizo Creek (tributary to the Cimarron River). This grove is situated about two miles south of the Colorado line and a mile east of the New Mexico line, well within the boundaries of Oklahoma. E. Paul Rothrock, at that time with the Oklahoma Geological Survey, first reported the presence of the finches in the region. During a portion of June and July, 1919, he was encamped at the grove in company with his wife, who was deeply interested in ornithology. As Rothrock's particular mission in that locality was to study the geological formations and take notes on the animal and bird life, the discovery of a bird hitherto unknown in the state interested him exceedingly. He observed the finches closely almost daily for two or three weeks, and learned many things about their habits and mode of living, but never found a single nest, or saw any but the dozen or so birds in the grove.

In 1920 and 1921 I observed a number of these finches near Kenton, and in the winter of 1921-22 they were numerous in the town itself. From that time on they have been present in large numbers the year around. The first nests were seen in this locality in the summer of 1922. In 1923 I found six on a two-acre tract of land on the outskirts of Kenton, and in 1924 there were eleven nests on this same tract. That same year, too, a pair of the birds had a nest in a small locust tree which grew in one corner of my yard in the residence section of the town. It was on June 11, 1924, that I first saw the nest in my yard. The black locust in which it was located measured a bit over eight feet in height and was surrounded by tall rose bushes. The nest was composed of tightly woven grass stems and plant fibers. It was cup shaped and rested in the forks of an upright branch about seven feet above the ground. At the time of my first visit the nest contained five eggs, four of which were apparently well incubated. Two days later one of the eggs had disappeared. The four remaining eggs hatched on June 20, and the fledglings made an extremely rapid growth, deserting the nest on July 12.

At the present time the southeastern limits of the House Finch's range in this region seems to be about nine miles southeast of Kenton. There were a few scattering nests out that far in that direction last summer, and a number of the birds have spent the past winter around the ranch houses in that same locality.—RALPH C. TATE, *Kenton, Oklahoma, April 17, 1925.*

The Status of the San Clemente House Finch.—For some years past, the standing of *Carpodacus mexicanus clementis* Mearns has suffered assault by various writers, at least some of whom do not seem to have comprehended, or have misinterpreted, the differences between linnets inhabiting the various islands and the mainland. The writer at one time confessedly inclined toward the same opinion, namely, that the island race

was founded upon characters too intangible for recognition by name. However, after examination of good series from most of the islands and a very large series from the mainland it seems apparent that the recently proposed "elimination" of *clementis*[1] was not well considered. There is considerable individual variation in this species and the differences between *clementis* and the mainland *frontalis* become apparent only when good series are compared. The following points will bear emphasis.

The extent of red or yellow on the males, the proportion of red to yellow males, and the measurements of wing and tail in either sex are all items to which no diagnostic value can be attached. The tarsi and feet of *clementis* are slightly heavier in appearance but are not longer than in *frontalis*, and, considering the variation displayed, this tendency will not bear stressing. The characters which appear to provide the most secure basis for differentiating the island race are the decidedly heavier bill, the intensity or brilliancy of coloration in the males and the heavier streaking of the females.

Specimens have been examined from Los Coronados Islands (8), San Clemente Island (61), Santa Catalina Island (13), Santa Barbara Island (7), Santa Cruz Island (28), Anacapa Island (2), San Miguel Island (1), mainland of California (151). On the basis of the above series I should divide the island linnets as follows:

Clementis, best development: San Clemente and Santa Barbara islands.

Clementis, intermediate toward *frontalis*: Los Coronados and Santa Catalina islands.

Frontalis, occasionally intermediate toward *clementis*: Santa Cruz, Anacapa and San Miguel islands. This form is most probably the one which occurs on Santa Rosa Island also.

These conclusions (with minor differences which probably result from the use of different series) are essentially the same as those reached by Dr. Joseph Grinnell.[2] I offer them simply as a "counter irritant" for the proposed elimination,—which proposal it may be pointed out was not based on a first-hand study of the case insofar as can be ascertained from the text.—A. J. VAN ROSSEM, *Pasadena, California, May 20, 1925.*

Winter Birds Seen at the Grand Canyon, Arizona.—In the CONDOR of March, 1920 (XXII, pp. 79-80), H. S. and Winifern W. Swarth reported the birds seen by them at the Grand Canyon in three days, December 18 to 20, 1919. I spent nine days there, December 3 to 12, 1924, exploring the rim on foot in each direction for eight miles, traversing the Bright Angel Trail on mule-back and the Hermit Trail on foot, and spending two nights and a day at the foot of Hermit Trail.

The temperature at the rim during these nine days varied from 13° to 45° F. The weather was fine with the exception of three days when it snowed hard, a total snow precipitation of 19.8 inches. About 3500 feet below the rim, there was rain, and the temperature averaged 20° higher, although there was a slight frost both nights that I spent at Hermit Creek Camp.

In the following list I have marked with an asterisk the species that are not included in the Swarth list. The birds seen by them that I failed to observe were: Eastern Goshawk, Cactus Woodpecker, Slate-colored Junco, and Bohemian Waxwing.

**Accipiter velox.* Sharp-shinned Hawk. A single bird was seen on two different days close to the rim, and one near Hermit Creek Camp, 4000 feet below the rim.

Dryobates villosus monticola. Rocky Mountain Hairy Woodpecker. Several seen above the rim.

Colaptes cafer collaris. Red-shafted Flicker. One seen above the rim.

**Sayornis sayus.* Say Phoebe. One seen in Hermit Creek Canyon.

Cyanocitta stelleri diademata. Long-crested Jay. Several above the rim.

Aphelocoma woodhousei. Woodhouse Jay. Two or three above the rim.

Nucifraga columbiana. Clark Nutcracker. Although I did not observe this bird myself, it was seen and described so accurately by an acquaintance at the hotel that I have included it here. The Swarths saw several.

Cyanocephalus cyanocephalus. Pinyon Jay. Single birds and a flock of twenty at the rim and a few seen on Tonto Trail near Hermit Creek Camp.

[1] Dawson, Birds of California, 1923, p. 213.

[2] Pacific Coast Avifauna, no. 11, 1915, pp. 107-108.

Passer domesticus. English Sparrow. Unpleasantly common about the hotel and cottages at the rim.

**Leucosticte atrata.* Black Rosy Finch. On December 5 and 6 it snowed hard and again on the 8th. On the last named date, about half way between the hotel buildings and Hermit's Rest, close to the road, I saw a single bird of this species and nearby three others. They were very unsuspicious and allowed me to approach within fifteen feet and to examine them with eight-power binoculars and note down every detail. They were perched in the pinyon pines and later on the snow, picking the seeds from low plants. Their striking black and gray and rosy plumage, their yellow bills with black tips, made them well marked, attractive, and easily recognized birds. This bird is not recorded in Swarth's Distributional List of the Birds of Arizona.

**Astragalinus psaltria.* Arkansas Goldfinch. On December 9 twenty-four of these little birds settled for the night in a cottonwood, still in leaf, close to the back door of the Hermit Creek Camp.

Spinus pinus. Pine Siskin. Three seen close to the hotel.

Junco hyemalis connectens. Shufeldt Junco. The common junco at the rim and in the Canyon.

**Junco hyemalis mearnsi.* Pink-sided Junco. One identified at the rim.

**Junco phaeonotus caniceps.* Gray-headed Junco. Three identified at the rim.

Salpinctes obsoletus obsoletus. Rock Wren. Five or six observed at and near Hermit Creek Camp.

Catherpes mexicanus conspersus. Canyon Wren. An equal number of this species was seen at Hermit Creek Camp. A few also at the foot of Bright Angel Trail. The beautiful song was heard twice.

Sitta carolinensis nelsoni. Rocky Mountain Nuthatch. Several seen in the woods along the rim.

Sitta pygmaea pygmaea. Pigmy Nuthatch. This bird was abundant near the rim in the yellow pines and pinyons. On December 11 I saw at least two flocks of perhaps a hundred each.

Baeolophus inornatus griseus. Gray Titmouse. Several seen above the rim.

Penthestes gambeli gambeli. Mountain Chickadee. Common above the rim.

**Psaltriparus plumbeus.* Lead-colored Bush-tit. Several seen near the Tonto Trail in the Canyon on December 9.

**Regulus calendula.* Ruby-crowned Kinglet. Several seen in Hermit Creek Canyon.

**Myadestes townsendi.* Townsend Solitaire. Two were seen on December 4 and one on the 10th near the rim.

Planesticus migratorius propinquus. Western Robin. One seen on the rim.

**Sialia mexicana bairdi.* Chestnut-backed Bluebird. Abundant in flocks at the rim. Often to be seen eating juniper berries.

The ten birds new to the list observed by me, together with the Swarths' list of twenty, makes the total of winter birds for the Grand Canyon, thirty.—CHARLES W. TOWNSEND, *Boston, Massachusetts, February 26, 1925.*

An Observation on the Pre-nuptial Feeding Habit of the California Linnet.—During the past few weeks several pairs of California Linnets (*Carpodacus mexicanus frontalis*) have been coming regularly to a feeding table located just outside my office window at the Natural History Museum, Balboa Park, San Diego. They have become accustomed to the presence of human beings within the room but a few feet distant, and act in a perfectly normal manner, quarreling over food and mates when more than a single pair are eating at the same time.

On the afternoon of March 19, 1925, a pair alighted on the edge of the table and my attention was soon attracted by a peculiar twittering call given by the female. It was rather unusual, so I watched them carefully and observed the male feed the female regurgitated food several times. His actions were much the same as those of any bird raising partly digested food from its crop; the head was bent sharply downward several times and the pellet was seen to rise up through the gullet. At that moment the female, with much twittering and flipping of wings, would open her beak to receive the titbit.

I have often seen this pre-nuptial feeding act at some distance on telephone wires or other exposed places, but have never before had the pleasure of such a close view;

I was within six feet of the pair and had a splendid profile view of the male as he worked to bring up the food. After the performance was over, they both ate freely of the damp, broken dog-biscuit that was on the table.—LAURENCE M. HUEY, *Natural History Museum, Balboa Park, San Diego, California, April 25, 1925.*

Another Occurrence of the Gray-headed Junco in San Diego County.—While assisting Frank Stephens in collecting birds for the Natural History Museum, San Diego, I took, on December 18, 1924, a specimen of *Junco caniceps* in the San Diego River gorge, about three-quarters of a mile south of the old Padre Dam. It is a male, no. 2899, collection of the San Diego Society of Natural History. The bird was taken out of a large flock of juncos, principally *thurberi*. A single *Junco hyemalis* was also secured from this flock. This record supports a theory that the autumn dispersal of *caniceps* from its nesting grounds in the Rocky Mountain region is, in California, in a southwesterly direction. Of the five records for the state now published (including this one), all are from southern California, three being from San Diego County.—PAUL F. COVEL, *San Diego Society of Natural History, San Diego, California, April 20, 1925.*

Wilson Phalarope on the Coast of Southern California in the Spring.—On May 2, 1925, at Playa del Rey, Shumway Suffel and I saw two small flocks of Wilson Phalaropes (*Steganopus tricolor*) on the gun-club ponds. The birds were in breeding plumage and were identified carefully. The red-brown streaking of the side of the neck was conspicuous as it turned in a horizontal line and ran along the upper wing. The white or lightish foreheads and tops were distinctive, as were the unmarked wings.—ROLAND CASE ROSS, *Dept. of Nature Study, Los Angeles City Schools, May 10, 1925.*

EDITORIAL NOTES AND NEWS

In the financial report of the British Ornithologists' Union, as given in the Ibis for May, 1925, we note a statement to the effect that but seventy-five copies have been sold of Part I of the "Systema Avium Ethiopicarum". We wish to call attention of the Cooper Club membership to this publication, and to urge that all who can possibly do so lend their support to the series of which it forms a part. A technical list of the birds of Africa may not appeal to many American bird students as essential to their libraries, but this is a narrow view that should not prevail. The work in question is but one volume of a series that will include the birds of the world. The next edition of our own "Check-list of North American Birds" will form part of the series. Merely from the point of view of the bibliophile who wishes to acquire sets of books in their entirety, it will be profitable for those who will later on buy copies of the North American volume to subscribe to the other parts as they appear. Then, it should be borne in mind that the British Ornithologists' Union has assumed a heavy financial burden in the publication of this initial volume, such as the American Ornithologists' Union will later assume for other parts of the series. It behooves all of us who are interested in the study of ornithology, and who can comfortably do so, to subscribe to the several volumes as they appear, in short to do our utmost to further the publication in its entirety of one of the most important series of ornithological books that has ever yet been planned.

Our contemporary, The Wilson Bulletin, begins a new regime with the current volume, number thirty-seven. Dr. Lynds Jones, founder, and for thirty-six years editor of the magazine, has now resigned this office, his place being taken by Dr. T. C. Stephens. For thirty of his thirty-six years of service, Dr. Jones alone, to quote his successor's comments, "assembled the copy, read the proof, distributed the magazines, jollied the printer, and otherwise piloted the Wilson Bulletin." It is no small service that he has thus rendered to American ornithology, and ornithologists of the middle west are doubtless well aware of the extent to which his unselfish labors have contributed toward promoting the interests of the student of birds, and, in particular, in holding the Wilson Club together and furthering the aims of that society. The Wilson Club was fortunate in having within its membership one who would give so generously of his time and labor toward the well-being of the Club, and who proved so well able to handle the difficult task of editing and managing a magazine like the Wilson Bulletin. We congratulate Dr. Jones upon

his thirty-six years of editorial service. He can enjoy his release from his labors the more in the realization that he turns over to his successor a "going concern", a magazine that is well established, successful, and growing.

Any visitor, or prospective visitor, to the California Sierras should be aware of the publication "Yosemite Nature Notes". In July, 1922, the first number of "Nature Notes" appeared, a little mimeographed journal that has run through three volumes. With volume four (1925), and under the new title, "Yosemite Nature Notes" is presented in regularly printed form and with an attractive cover. Originally produced by the Park Service primarily to make known the activities of the Yosemite Nature Guide Service, the scope of the paper has been extended so that it is now the official organ of the Yosemite Natural History Association and of the Yosemite Museum. The subject matter is naturally of local interest and application for the most part; its function is to purvey information regarding local features. The articles are well presented, and convey an impression of reliability. They sound, as they are, as the records of careful observers who are intent on accuracy rather than on making flamboyant and startling impressions. In the first three numbers of volume four we note articles on bear and deer by C. P. Russell, on botanical subjects by Enid Michael, and on certain eagles, hawks and owls by Donald McLean. Especially deserving of mention is Russell's account of some aspects of "unnatural" history, an amusing assemblage of tales of animal misbehavior that are widely current, some of them the world over. Illustrations are some from photographs and some (of birds and mammals) from drawings by E. J. Sawyer.

The California Phainopepla has recently been named by Josselyn Van Tyne (Occasional Papers of the Boston Society of Natural History, vol. 5, May 22, 1925, p. 149) as a race distinct from the original *Phainopepla nitens* of southern Mexico. The northern bird is designated *Phainopepla nitens lepida*, the type locality is Riverside, California, and the characters ascribed to the subspecies are solely differences of size. The northern bird is the smaller, or at any rate has shorter wing and tail.

Fig. 46. THE FIRST PRESIDENT OF THE COOPER ORNITHOLOGICAL CLUB (see page 161).

PUBLICATIONS REVIEWED

SKINNER'S BIRDS OF YELLOWSTONE PARK.*—In this publication the formal list of species of birds accredited to Yellowstone National Park (pp. 170-176) shows 202 entries. The bibliography (pp. 177-181) includes 53 titles. There are two black-and-white inserted maps, one of them showing the localities mentioned in the text and the other one showing the life zones of Yellowstone Park. There are four colored plates, admirable for the purpose. Each shows an "association" of birds, six to eight species to a plate. These plates are the work of Edmund J. Sawyer; and while the figures are necessarily small, they are remarkably clear, creditable not only to the artist,

* The birds of the Yellowstone National Park, by Milton P. Skinner < Roosevelt Wild Life Bulletin, vol. 3, no. 1 = Syracuse Univ. Bull., vol. 24, no. 24, February, 1925, pp. 7 (or 11)-192, col. pls. 1-4, folded maps 1, 2, text-figs. 1-47.

but to the engraver and printer. The contribution ends with a full index (pp. 183-189).

Let me first register whatever adverse criticism I may have. This criticism relates neither to the textual subject matter nor to the illustrations, but to editorial features. One fault from the standpoint of the user is that the front cover (and also numerous pages both at the front and the back) are over burdened with institutional advertising. Indeed, as one picks up the publication and starts through it, he fails at first to get any outstanding clue as to the nature of the contents, the type in which the title and author are set forth on the cover being subordinated to that which designates the auspices of publication. In fact, there is a curious mixture of "official" matter with the "contents", which latter occurs partly in two places; and there is no true title page at all.

Two editorial mistakes that are apparent in the legends to the text figures are as follows: Figure 16 is said to be a "photo by R. B. Rockwell". But it is a photo by F. N. Irving (see Condor, 1920, p. 14). Furthermore, the figure is not that of a "Red-shafted" Flicker, but of the eastern, Yellow-shafted Flicker. Figure 27 is credited to "M. P. Skinner"; but it is from a photo taken by H. J. Rust (see Condor, 1920, p. 90). These are little things perhaps; but it is the last five percent in the direction of perfection that marks a superior piece of work.

Now as to the text, the main part of the contribution under review: It is the work of an author who shows himself to be a close observer and a conscientious reporter. The text is narrative in style; popular, in the sense that it is entertainingly readable. The accounts of the birds of Yellowstone Park are given by region or association, and a sort of ornithological travelogue through the Park results. This mode of treatment seems to us a happy one, at least as employed in a brochure for the use of a tourist public.

Not only the bird life but other features of the natural history of the region are worked into these accounts. The interpretations of general faunal relationships and of interdependencies between various animals are intelligently and stimulatively discussed. There is an especially good extended account of the White Pelican. Moot points in the behavior and life history of this bird are considered fairly. Never is a positive statement made except on the basis of the author's first-hand observation. Mr. Skinner is commendably ready to say "I do not know" or "I have not myself actually seen this"—or words to such effect. Among other important things, he records that the horny keel is present on the bill of the White Pelican in both sexes, being developed to greatest extent, and most generally among the birds, in late May.

One rather amusing lapse I notice is the designation almost invariably of a certain bird as "Water Ouzel or Dipper"; sometimes the sequence is reversed. These names seem so inseparable that the two together seem now to comprise *the* name of the species! We note this double name on colored plate 4 and on text-figure 2, as well as on various pages in the text. We have seen this same usage in other American publications, as also in a late English periodical. Of interest as bearing on Dr. Townsend's discussion which appears elsewhere in the present issue of THE CONDOR, is Mr. Skinner's reference (p. 89) definitely to the "white eyelid" of the dipper.

A valuable account is given of the exceedingly rare Trumpeter Swan. This bird has been found nesting within the Yellowstone Park, perhaps its only present-day station of occurrence within the United States. Mr. Skinner records individuals as seen up until 1922.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, April 16, 1925.*

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

MARCH.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, University of California, Berkeley, on March 26, 1925, at 8 P. M. In the absence of the president and vice-president, Mr. Joseph Mailliard was made chairman of the evening. Minutes of the Northern Division for February were read and approved. Minutes of the Southern Division for February were read. The following members were present: Misses Beaman and Canby; Mesdames Grinnell and Kibbe; Messrs. Clabaugh, Cooper, Cozens, Dixon, English, Foster, Grinnell, W. Grinnell, Hall, Kibbe, Mailliard, Perine, Simpson, Swarth and White. Mrs. Clabaugh and Mr. Gentry were visitors.

Applications for membership were read as follows: Bernhard C. Bremer, 516 Battery Street, San Francisco, Calif., by H.

C. Bryant; Goodwin L. Foster, 1125 High Court, Berkeley, Calif., by H. C. Bryant; Howard S. Gentry, Westmoreland, Calif., by E. Raymond Hall; Florence S. Hague, Corvallis, Oregon, by J. Grinnell; Harold Mestre, Fresno, Calif., by H. C. Bryant.

Acknowledgements were read from Senators Johnson and Shortridge, of telegrams received by them from the Northern Division of the Cooper Club asking their support of the Game Refuge Bill.

Mr. Joseph Grinnell briefly reviewed two recent papers published by Dr. N. Kuroda. One of these papers, "Birds as Natural Treasures of Japan", dealt with eleven species of birds which have been since 1921 "specified as natural monuments". Among these birds the Long-tailed Fowls of Tosa are the most striking. Dr. Kuroda states that the tails of these fowls sometimes reach a length of fifteen feet.

It was brought before the meeting that the California State Fish and Game Commission plans again to establish a game farm and make a new endeavor to propagate and establish foreign game birds in California. The grave danger to our native game birds which such a course would bring about, if successful, was discussed. Mr. Joseph Mailliard urged that a more logical plan would be to establish safe refuges and breeding places for native species and cited an instance of increase under favorable conditions which came under his own observation some years ago in Marin County. There quail became very numerous when afforded the shelter of rapidly growing cypress, but when the cypress grove died the quail became scarce again.

Mr. J. S. Hunter of the California State Fish and Game Commission had been scheduled to give the first talk of the evening but was detained in Sacramento. Mr. A. S. Kibbe, second on the evening's program, read the paper given by him at the Eleventh National Game Conference, New York City, December 8 and 9, 1924. His title was "A Western View of the Game Refuge Bill". Mr. Kibbe's paper was a summary of the attitude of sportsmen and bird lovers of the West toward the bill and a report of their outspoken advocacy of conservation. Mr. Kibbe's earnest plea that conservation be begun before it is too late to save for our children our precious heritage of wild life appealed strongly to all who heard it. Adjourned.—HILDA W. GRINNELL, *Secretary.*

APRIL.—The Northern Division of the Cooper Ornithological Club held its regular monthly meeting at the Museum of Vertebrate Zoology, University of California, Berkeley, April 23, 1925, at 8 P. M. In the absence of the president and vice-president, Mr. Keble B. Perine was made chairman of the evening. Minutes of the Northern Division for March were read and approved. Minutes of the Southern Division for March were read.

The following members were present: Misses Beaman, Burk, Culver and McGugin; Mesdames Bogle, Grinnell, Mexia, Mikesell and Perry; Messrs. Bryant, Bunker, Clabaugh, Dixon, Gentry, Grinnell, W. Grinnell, Hall, Jesser, Kibbe, Noack, Perine, Streator and Swarth. Visitors present were Miss Cockefair; Mesdames Corwin, Clabaugh, Kerr, Noack and Perine; Messrs. Haley, McGowan and Mikesell.

Applications for membership were read as follows: Glover M. Allen, Museum of Comparative Zoology, Cambridge, Massachusetts; William Higgs, 1823 Ninth Street, Berkeley, California; Charles D. Holliger, 215 Commercial Savings Bank Building, Stockton, California; all proposed by J. Grinnell.

Mr. Kibbe called the attention of members to a remarkable film being shown at an Oakland theatre, which portrays the home life of the English Cuckoo, the scene (and the egg) being laid in a Titlark's nest.

Mr. Swarth brought to the notice of the Club the fact that after 36 years of continuous and faithful service, Lynds Jones is retiring as editor of *The Wilson Bulletin*, and suggested that the Northern Division of the Cooper Club take formal cognizance of his devotion to the science of ornithology. The secretary was accordingly instructed, by unanimous vote, to forward to him the felicitations of the Northern Division.

Mr. Grinnell exhibited a separate from the "Scientific Monthly" for 1876, and read extracts from the article, which was entitled "Birds Observed in the Vicinity of Oakland". It was written by E. W. Nelson, then of Chicago, now Chief of the United States Biological Survey. All who heard it were much interested in this account of bird life on Lake Merritt as recorded December 23, 1872, and felt that the keen powers of observation shown and careful recording done by the seventeen-year-old author promised the success, in

his chosen field, which time has demonstrated.

"Aviculture" was the subject of the evening's talk, and Mr. H. R. Noack was the speaker. He described the ideal aviary and suggested Pittosporum and Monterey Cypress as best adapted for aviary plants, most other greens being too readily eaten by the birds. A discussion of birds best suited for aviary life was followed by a description of their nesting habits. For the student too busy to seek birds in their native surroundings the study of habits, molts and plumages, food and reactions toward other birds, is easily carried on upon aviary subjects. Mr. Noack has found also that an aviary acts as a magnet, drawing into the shrubbery about it an abnormally large number of native birds both resident and migratory. Adjourned.—HILDA W. GRINNELL, *Secretary.*

MAY.—The Northern Division of the Cooper Ornithological Club held its regular monthly meeting at the Museum of Vertebrate Zoology, University of California, Berkeley, May 28, 1925, at 8 P. M., with President Lastreto in the chair. Minutes of the Northern Division for April were read and approved. Minutes of the Southern Division for April were read.

The following members were present: Misses Culver and McLellan; Mesdames Bamford, Bogle, Grinnell, Mikesell, Perry and Taylor; Messrs. Bunker, Carriger, Clabaugh, Cooper, Cozens, English, Evermann, Foster, Grinnell, Jesser, Lastreto, Simpson and Swarth. Visitors present were: Miss Cockefair, Mesdames Clabaugh, Evermann, Jesser and Swarth; Messrs. McGowan, Stuart Grinnell, Mikesell, Perry, Shaw, and Taylor.

Applications for membership were read as follows: Ellen A. Cockefair, 2415 Telegraph Avenue, Oakland, Calif., by Ynes Mexia; Harold H. Greene, P. O. Box 878, Stanford University, Calif., by J. Eugene Law; George Haley, 2311 Bancroft Way, Berkeley, Calif., by J. Grinnell; Harold Kirby, Jr., Dept. of Zoology, University of California, Berkeley, by J. Grinnell; and E. Woodruff Yeates, 3978 Washington Street, San Francisco, by H. W. Carriger.

A communication was read from the Ecological Society of America, Committee on Preservation, urging the coöperation of the Cooper Club in the Society's effort to have the Cook Forest in northwestern Pennsylvania acquired by the State and preserved, because of its virgin tract of the rapidly disappearing white pine. The Secretary was instructed by motion to communicate to Governor Pinchot of Pennsylvania and Secretary Swift of the Cook Forest Association the hearty approval of such action by the Northern Division of the Cooper Ornithological Club.

A letter of appreciation from Dr. Lynds Jones was read, thanking the Northern Division for its felicitations upon his retirement as editor of the *Wilson Bulletin.* The Secretary was instructed to invite Dr. Jones to attend meetings of the Northern Division during his proposed visit to California.

Two books recently received from the publishers were briefly reviewed by Mr. J. Grinnell: a new edition of Dr. C. W. Townsend's "Sand Dunes and Salt Marshes", and "Bird Islands of Peru" by R. C. Murphy. Both books were warmly commended to nature lovers. The last mentioned book is a clearly and authoritatively written account of the bird life of the guano islands. "Sand Dunes and Salt Marshes" is a fascinating record of the natural history of the Ipswich dunes, recorded through the years by a keen-eyed and thoughtful student.

The evenings' talk was given by Mr. Harold Kirby, Jr., whose good fortune it was last year to spend four months on Fanning Island, with brief visits to the lesser islands of the group. His talk was illustrated by slides and specimens, and his portrayal of the habits of the tropic birds, man-of-war birds, and boobies held for his hearers the charm which always pertains to unfamiliar things brought home from far away.

Before the close of the meeting Mr. C. B. Lastreto, who had just returned from a trip to Central America, brought before the meeting the distressing fact that aigrettes are still offered for sale in the shops of Panama, Havana and Colon. Adjourned.—HILDA W. GRINNELL, *Secretary.*

SOUTHERN DIVISION

MARCH.—The Southern Division of the Cooper Ornithological Club held its regular monthly meeting at the Los Angeles Museum, Exposition Park, on Thursday evening, March 26, 1925, with President Wyman in the chair and the following members present: Miss Potter; Mesdames Edwards, Ellis, Law; Messrs. Allen, Appleton, Barnes, Campbell, Chambers, Gardner, Hánaford, Law, Pierce, Reis, Rich, Runner and Wyman. Visitors included Mesdames Reis, Swinney and Wyman; Messrs. Chambers, Haines, Edwards and Rockwell.

Minutes of the February meeting were read and approved. Minutes of the Northern Division for February were read. Applications for membership were as follows: Miss Mary S. Clarke, Shadwell, Virginia, by W. Lee Chambers; Richard B. Harding, 107 W. Canton St., Boston, Mass., by J. Eugene Law; Miss Mary E. Laing, Carmel-by-the-Sea, Calif., by J. Eugene Law; Dana Jackson Leffingwell, Aurora-on-Cayuga Lake, N. Y., by W. Lee Chambers; Dr. Wallace Rogers, 65 Hurt St., Atlanta, Ga., by W. Lee Chambers; Mrs. E. J. Saunders, 122 N. Friends Ave., Whittier, Calif., by W. Lee Chambers; Justus von Lengerke, 257 Highland Ave., Orange, N. J., by W. Lee Chambers.

The Club was in receipt of a communication from Van M. Griffith, president of the Los Angeles Park Department, inviting the Club to participate in the opening and dedication of a bird sanctuary in Vermont Canyon, Griffith Park, on April 14, 1925. The secretary was instructed to acknowledge receipt of the invitation and Mr. Wyman was elected a committee of one to represent the Club on this occasion.

The President then introduced Mr. R. B. Rockwell, of Denver, Colorado, a former member of the Cooper Club, and at one time associate editor of the Condor. Mr. Rockwell gave an interesting talk on ornithology in Colorado, telling of his interest in bird photography, and his achievement in photographing the ptarmigan in the high Rockies. He also discussed with the members the advisability of reducing the present bag limit on ducks. Mrs. Edwards told of her success in trapping and banding birds at her home in Altadena. Adjourned.—ELLA H. ELLIS, *Secretary.*

APRIL.—The Southern Division of the Cooper Ornithological Club held its regular monthly meeting at the Los Angeles Museum, Exposition Park, on April 30, 1925, at 8 P. M., with the following members present: Misses Howard, Olson; Mesdames Edwards, Ellis, Law, Robertson, Warmer; Messrs. Allen, Appleton, Barnes, Bishop, Calder, Chambers, Harris, Law, Peyton, Pierce, Rich, Robertson, Ross, Runner and Wyman. Visitors included Misses Christopherson, Law and Marsh; Mesdames Calder, Howard, Law and Wyman; Messrs. Chambers, Edwards, Howard and Wales.

The meeting was called to order by the president, Mr. Wyman. Minutes of the March meeting were read and approved, followed by reading of the March minutes of the Northern Division. The following applications were read: Charles Homer Bradford, 852 E. 5th St., Pomona, Calif., by Wright M. Pierce; Stephen C. Bruner, care of Bryan Peters, San Fernando Route, Tucson, Ariz., by J. Eugene Law; Mrs. Lila McKinley Lofberg, Edison Camp No. 3, Big Creek, Calif., by Harold Michener; Henry Joseph Perry, 19 Bay State Road, Boston, Mass., by W. Lee Chambers; Edward L. Peterson, 1756 Morgan Place, Hollywood, Calif., by J. Eugene Law; William Stone Post, Bernardsville, N. J., by W. Lee Chambers; Eric Deane Sismey, Power House No. 3, Big Creek, Fresno County, Calif., by Harold Michener; Harry Herbert Stone, Jr., P. O. Box 101, Sturbridge, Mass., by W. Lee Chambers; Charles Anderson Urner, 613 Cleveland Ave., Elizabeth, N. J., by W. Lee Chambers; Mr. Joseph Wales, 2225 Maiden Lane, Altadena, Calif., by M. W. deLaubenfels; Laidlow O. Williams, care of Bryan Peters, San Fernando Route, Tucson, Ariz., by J. Eugene Law.

Upon motion of Mr. Law, duly seconded and carried, it was voted that Dr. C. O. Esterly be asked to represent the Southern Division of the Club at the annual meeting of the Pacific Division, American Association for the Advancement of Science, to be held at Portland in June. Mr. Wyman, as a committee of one appointed last month to represent the Club at the opening and dedication of a Bird Sanctuary in Vermont Canyon, Griffith Park, reported the occasion a complete success.

The speaker of the evening, Dr. L. B. Bishop, discussed the status of the Krider, Harlan and Red-tailed hawks, exhibiting specimens of each. His talk, "A Collecting Trip in Alaska", was a very interesting, and, at times, most amusing, account of a trip up the Yukon taken about twenty-five years ago in company with Dr. Wilfred H. Osgood and one other companion.

Several members, who had recently been on short trips, were called on for their observations. Mr. deLaubenfels responded with an account of finding the nest of the Bald Eagle on Catalina Island. Mr. Roland Ross told of the many species of warblers found in migration near Palm Springs. Mr. Law spoke briefly of a visit to Painted Canyon. The Cardinal was reported as having been found nesting in the vicinity of Los Angeles. Adjourned.—ELLA H. ELLIS, *Secretary.*

For Sale, Exchange and Want Column.—Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address W. LEE CHAMBERS, *Drawer 123, Eagle Rock, California.*

CALIFORNIA NATURE STUDY—Two new texts, illustrated; practical for teacher and nature lover. School Nature Study, $2.00; Primary Nature Study, $1.75. By Roland Case Ross (Asst. Supv. Nature Dept., Los Angeles City Schools). Order from *388 Dearborn St., Pasadena, Calif.*

BIRD SKINS—Those wishing to supplement their collections by the addition of Tropical species can find a great number available from Costa Rica, collectable on order.—AUSTIN SMITH, *Apartado 412, San José, Costa Rica.*

Would like to hear from collectors expecting to make extended trips to Mexico or islands off Central America. My interest centers on mollusks and eggs of Accipitres. If you can collect any of above, make your proposition to—RALPH W. JACKSON, *Route No. 1, Cambridge, Maryland.*

WILL EXCHANGE my collection of 840 mounted birds and skins and 200 vols. of Nat. History Books and magazines for 1923 or 1924 Model Buick or Studebaker automobile fully equipped and in first class condition.—H. F. DUPREY, *R. F. D. 4, Box 1151, Sacramento, Calif.*

GLASSES—Champier 3½-power, hinged frame, $7.25; Lemaire 5-power, $12.50; French 6 or 8-power, $18.75 and $20.50 (equal $65 glasses); Mirakel 3½ or 5-power, universal focus (once focused, focused for life and for ALL distances), $18.50 and $22.50; French 10-power, $27; Lemaire, 6, 8 and 10, or 8, 10 and 12-power, combined, changeable in an instant to meet light conditions, $69 and $74; Busch 24-power, $107. Anything you want in Colmont, Megaphos, Busch, Bausch & Lomb, Schultz or Zeiss. Give specifications and price you wish to pay. Sent on approval to brother members of the C. O. C.—J. ALDEN LORING, *Box O, Owego, N. Y.*

I will be glad to have any data on specimens of Passenger Pigeon, Trumpeter Swan, Eskimo Curlew, Whooping Crane, Labrador Duck, Carolina Parakeet, and Ivory-billed Woodpecker in private collections. Have nice skins of Eastern U. S. birds to exchange for Central and South American birds.—HENRY K. COALE, *Highland Park, Illinois.*

PACIFIC COAST AVIFAUNA

No. 11. A Distributional List of the Birds of California, by J. Grinnell, 1915, 217 pp., 3 pls. (maps). Price $3.00 post paid.

An accurate and invaluable work of reference regarding the birds of this state. The main list includes 541 species, giving for each one a list of the synonyms under which it has been previously recorded, and an exact statement of its status within the state. There is a supplementary "Hypothetical List", and chapters dealing with theories and principles of the distribution of animal life in California, maps illustrating some of the facts of distribution, and an index including currently accepted names and all synonyms.

For sale by W. LEE CHAMBERS, Business Manager,
Drawer 123, Eagle Rock, California

In Press

PACIFIC COAST AVIFAUNA No. 17

A DISTRIBUTIONAL LIST OF THE BIRDS OF BRITISH COLUMBIA

By

ALLAN BROOKS AND HARRY S. SWARTH

170 pages (estimated), colored frontispiece, colored life-zone map, 26 maps showing distribution of species, and 12 half-tone text figures

This publication is mainly concerned with the manner of occurrence of the 409 species and subspecies of birds now credited to the Province of British Columbia. Beside the main list, there are supplementary lists, of introduced species and of species accredited to British Columbia on insufficient grounds, a bibliography of British Columbia ornithology, and an index. Introductory chapters deal with the life zones and faunal divisions of British Columbia, and with a historical sketch of ornithological work previously done in the Province. General style of treatment is as in Pacific Coast Avifauna No. 10.

This is the most elaborate and most thorough publication yet to appear, dealing with the birds of British Columbia. A copy should be in every library and on every ornithological study table in North America.

Price, prepaid, $5.00

(50% discount to members of the Cooper Club)

W. LEE CHAMBERS, Business Manager

Drawer 123, Eagle Rock, California